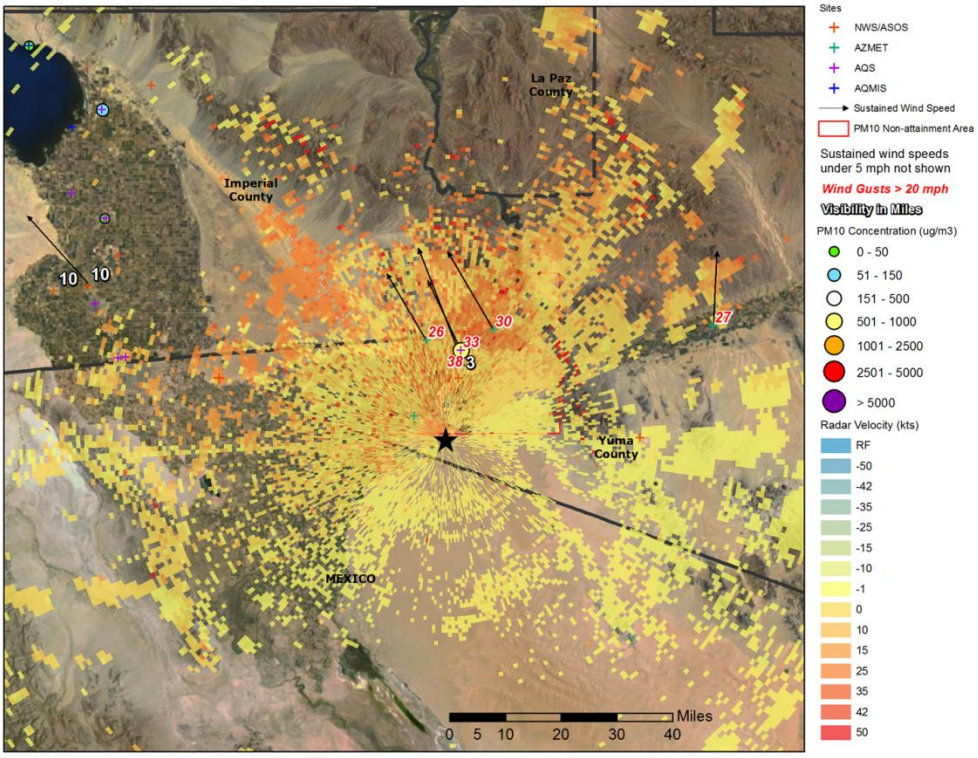
Sonoma Technology, Inc.
Air Quality Research and Innovative Solutions

State of Arizona Exceptional Event Documentation for the Event of July 10, 2013, for the Yuma County PM_{10} Nonattainment Area



Final Report Prepared for

Arizona Department of Environmental Quality
Phoenix, AZ

November 2013

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State of Arizona Exceptional Event Documentation for the Event of July 10, 2013, for the Yuma County PM_{10} Nonattainment Area

Final Report
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Cover graphic illustrates hourly wind speeds, visibilities, radar velocities, and PM_{10} concentrations in the Yuma, Arizona, area during the July 10, 2013, event.

Acknowledgments

The authors would like to acknowledge the Arizona Department of Environmental Quality and the U.S. Environmental Protection Agency, Region 9, for helpful discussion and feedback during the preparation of this document.

Table of Contents

Section **Page**

Section **Page**

List of Figures

Figure **Page**

List of Tables

1. Introduction

On July 10, 2013, the Yuma Supersite monitor recorded a 24-hr average PM_{10} concentration of 159 µg/m^3. This value is in exceedance of the National Ambient Air Quality Standard (NAAQS) of 150 µg/m^3 for 24-hr PM_{10}. This report demonstrates that this exceedance was caused by naturally occurring windblown dust, was not reasonably controllable or preventable, was historically unusual, and would not have occurred "but for" the windblown dust, and therefore the event is an exceptional event as defined by the U.S. Environmental Protection Agency's (EPA) Exceptional Events Rule (EER).

1.1 Report Contents

Section 2 of this assessment contains a conceptual model of the windblown dust event that occurred on July 10, 2013, providing a background narrative of the exceptional event and an overall explanation that the event affected air quality. Section 2 also provides evidence that the event was a natural event.

Section 3 of this assessment establishes a clear causal connection between the natural event on July 10, 2013, and the exceedance of the 24-hr PM_{10} standard at the monitoring station. The evidence in this section also confirms that the event in question both affected air quality and was the result of natural events.

Section 4 of this assessment contains data summaries and time-series graphs which help illustrate that the event of July 10, 2013, produced PM_{10} concentrations in excess of normal historical fluctuations.

Section 5 of this assessment details the existing dust control measures and demonstrates that despite the presence and enforcement of these controls, the event of July 10, 2013, was not reasonably controllable or preventable.

Section 6 of this assessment builds upon the demonstration, showing a clear causal connection between the natural event and the exceedance, and concludes that the exceedance of the 24-hr PM_{10} standard on July 10, 2013, would not have occurred but for the event.

Appendix A contains time-series graphs and data tables to supplement Section 3. **Appendix B** contains air quality forecasts issued by the Arizona Department of Environmental Quality (ADEQ) and weather statements and warnings issued by the National Weather Service (NWS). **Appendix C** contains a copy of the affidavit of public notice concerning this assessment report.

1.2 Exceptional Event Rule Requirements

In addition to the technical requirements that are contained within the EER, procedural requirements must also be met in order for the EPA to concur with the flagged air quality monitoring data. This section of the report contains the requirements of the EER and associated guidance, and discusses how ADEQ addressed those requirements.

1.2.1 Public Notification That the Event Was Occurring (40 CFR 50.14(c)(1)(i))

ADEQ issued Air Quality Forecasts for the greater Yuma area indicating that periods of gusty winds and high PM_{10} concentrations due to thunderstorm outflow were possible on July 10, 2013. More information on ADEQ's forecasting program can be found in Section 5.2 of this report. The forecast products that were issued for July 10, 2013, are included in Appendix B.

1.2.2 Place Informal Flag on Data in AQS (40 CFR 50.14(c)(2)(ii))

ADEQ and other operating air quality agencies in Arizona submit data into the EPA's Air Quality System (AQS), the official repository of ambient air quality data. This data submittal to AQS includes particulate matter (PM) data from both filter-based and continuous monitors operated in Arizona.

When ADEQ and/or another agency operating monitors in Arizona suspects that data may be influenced by an exceptional event, ADEQ and/or the other operating agency expedites analysis of the filters collected from the potentially-affected filter-based air monitoring instruments, quality-assures the results, and submits the data into AQS. ADEQ and/or other operating agencies also submit data from continuous monitors into AQS after quality assurance is complete.

If ADEQ and/or other operating air quality agencies have determined that a monitor's reading(s) may have been influenced by an exceptional event, a preliminary flag is submitted for the measurement in AQS. The data are not official until they undergo more thorough quality assurance and quality control, leading to certification by May 1 of the year following the calendar year in which the data were collected (40 CFR 58.15(a)(2)). The presence of the flag can be confirmed in AQS.

1.2.3 Notify EPA of Intent to Flag Through Submission of Initial Event Description by July 1 of Calendar Year Following Event (40 CFR 50.14(c)(2)(iii))

ADEQ submitted a letter to EPA on September 11, 2013, listing all days from calendar year 2013 that ADEQ intends to analyze under the EER. The PM_{10} exceedance that occurred at the Yuma Supersite monitor on July 10, 2013, in the Yuma PM_{10} Nonattainment Area was included on this list. This assessment report demonstrates support for the flagging of these data.

1.2.4 Document That the Public Comment Process Was Followed for Event Documentation (40 CFR 50.14(c)(3)(iv))

ADEQ posted this assessment report on the ADEQ webpage and placed a hard copy of the report in the ADEQ Records Management Center for public review. ADEQ opened a 30-day public comment period on December 16, 2013. A copy of the public notice certification, along with any comments received, will be submitted to EPA, consistent with the requirements of 40 CFR 50.14(c)(3)(iv). See Appendix C for a copy of the affidavit of public notice.

1.2.5 Submit Demonstration Supporting Exceptional Event Flag (40 CFR 50.14(a)(1-2))

At the close of the public comment period, and after ADEQ has had the opportunity to consider any comments on this document, ADEQ will submit this document, the comments received, and ADEQ's responses to those comments to EPA Region 9 headquarters in San Francisco, California. The deadline for the submittal of this package is September 30, 2016.

1.2.6 Documentation Requirements (40 CFR 50.14(c)(3)(iii))

The EER states that in order to justify the exclusion of air quality monitoring data, evidence must be provided for the following elements:

1. The event satisfies the criteria set forth in 40 CFR 50.1(j) that
    a. the event affected air quality,
    b. the event was not reasonably controllable or preventable, and
    c. the event was caused by human activity unlikely to recur in a particular location or was a natural event;
2. There is a clear causal relationship between the measurement(s) under consideration and the event;
3. The event is associated with a measured concentration(s) in excess of normal historical fluctuations; and
4. There would have been no exceedance or violation but for the event.

1.3 Guide to New Material in This Report

Naturally occurring dust events occur several times per year in Arizona, with each event requiring the preparation of exceptional events documentation. Some text in this documentation is required by the EER and is common to all the demonstrations. The text, figures, and tables unique to this event are outlined in **Table 1-1**.

Table 1-1. Summary of information unique to the Yuma July 10, 2013, event.

Section	Unique Material
Throughout the report	Event date(s) updated
Section 2.3	Event day summary
Chapter 3	Clear causal relationship
Chapter 4	Historical norm
Sections 5.1.3 through 5.4	Source-permitted inspections and public complaints, forecasts and warnings, and wind observations
Chapters 6 and 7	But-for analysis and conclusion
Appendices A and B	Additional data, forecasts, and media reports; key points in meteorological data tables and \statements are highlighted

2. Conceptual Model

This section provides a narrative background and summarizes the meteorological and air quality conditions in place on July 10, 2013, in Yuma. Elements described in this section include

- A description and map of the geographic setting of the air quality and meteorological monitors (Section 2.1).
- A description of Yuma's climate (Section 2.2).
- An overall description of meteorological and air quality conditions on the event day (Section 2.3).

2.1 Geographic Setting and Monitor Locations

Yuma is located in the Sonoran Desert and Lower Colorado River Valley in extreme southwestern Arizona at an elevation of 138 feet above sea level. The Yuma Metropolitan Statistical Area is defined as Yuma County, which reported a population of 195,751 in the 2010 census. Yuma County is bordered by Imperial County, California, to the north and northwest and by the Mexican state of Baja California to the west and south (**Figure 2-1**). Yuma lies just west of the confluence of the Colorado and Gila Rivers. Most of Yuma is located in the Colorado River Floodplain, commonly known as the Yuma Valley. The Yuma Valley follows the course of the Colorado River southward to the Sea of Cortez. Part of Yuma is built on the Yuma Mesa, a prominent land feature extending to the east of Yuma. The Gila Mountains, located roughly 15 to 20 miles east and southeast of Yuma, have a peak elevation of 3,156 feet.

The air quality and meteorological monitors used in this analysis are shown in Figure 2-1. AQS monitors measure air quality and meteorological data; Arizona Meteorological Network (AZMET) and NWS monitors measure meteorological data only. The PM_{10} exceedance on July 10, 2013, was recorded at the Yuma Supersite monitor, which is located in central Yuma and has been operational since January 1, 2010. The Yuma Courthouse monitor shown in Figure 2-1 is inactive, but measured PM_{10} prior to January 1, 2010. Data from the Yuma Courthouse monitor were used to supplement the Yuma Supersite data record for the Historical Norm section (Section 4) of this demonstration. Three AZMET sites are in operation in the Yuma area, located northeast, west, and southwest of the city. An NWS monitor is located at the Yuma Marine Corps Air Station (MCAS). Additional air quality and meteorological monitors with data relevant to this dust storm event are located in adjacent southeastern California and northwestern Mexico (**Figure 2-2**).

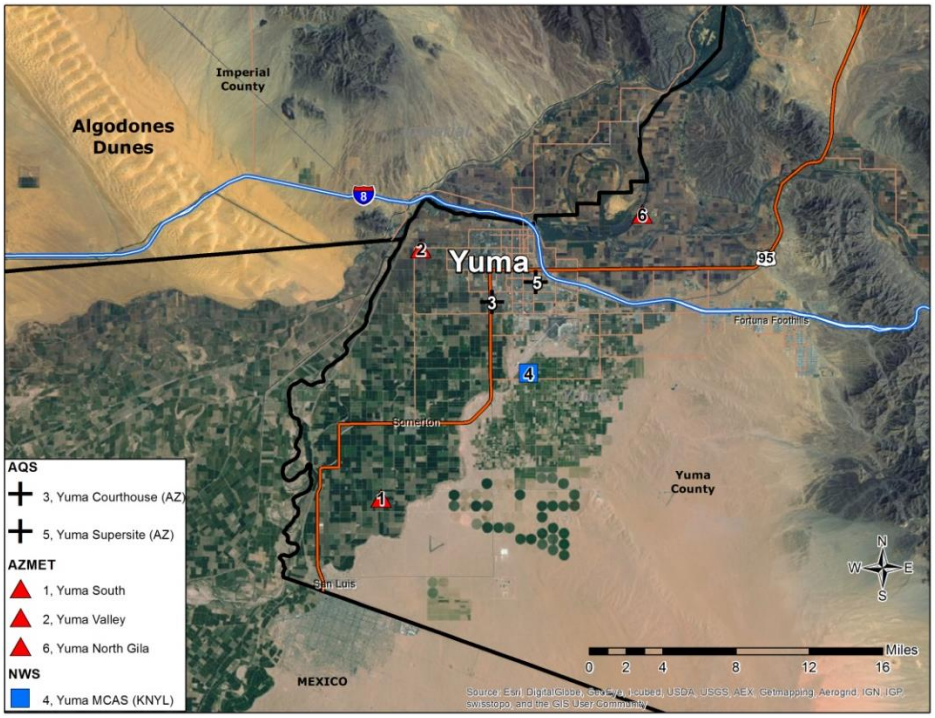


Figure 2-1. Air quality and meteorological monitors in the immediate Yuma region.

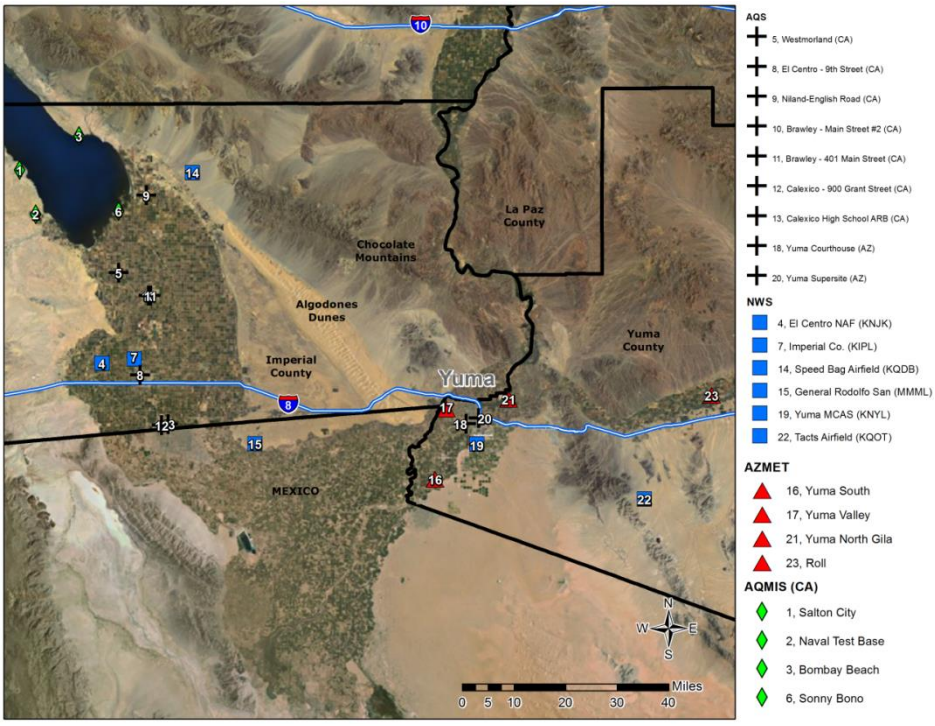


Figure 2-2. Location of air quality and meteorological monitors and relevant geographical features in the Yuma area.

2.2 Climate

Yuma is one of the hottest cities in the United States, with average high temperatures around 107°F in July and around 70°F in January (**Figure 2-3**). Yuma receives roughly 90% of possible sunshine each year. Yuma is also one of the driest cities in the United States, with an average annual rainfall of just over 3 inches. The bulk of this rain usually falls during December-March and July-August. During December-March, winter storms originating from the Pacific Ocean can produce significant rains in southwestern Arizona. During July-August, monsoonal moisture originating from the Gulf of California, Gulf of Mexico, and large thunderstorm complexes over the Sierra Madre Occidental Mountains in Mexico move northward into Arizona.

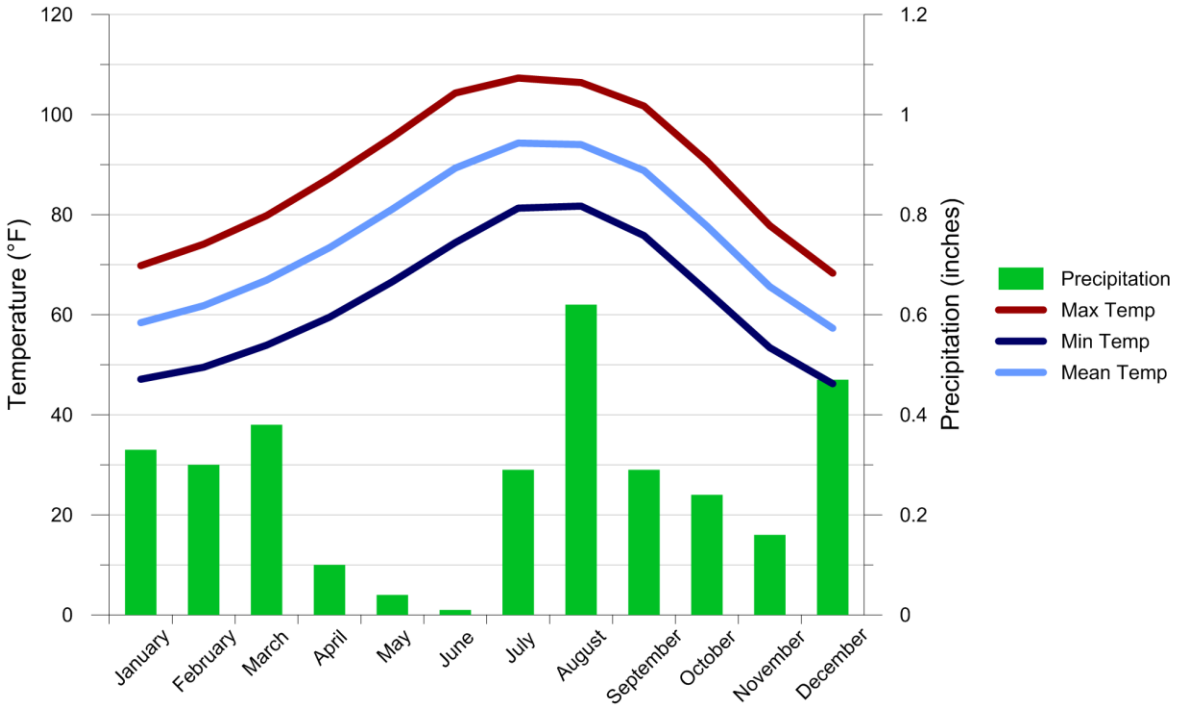
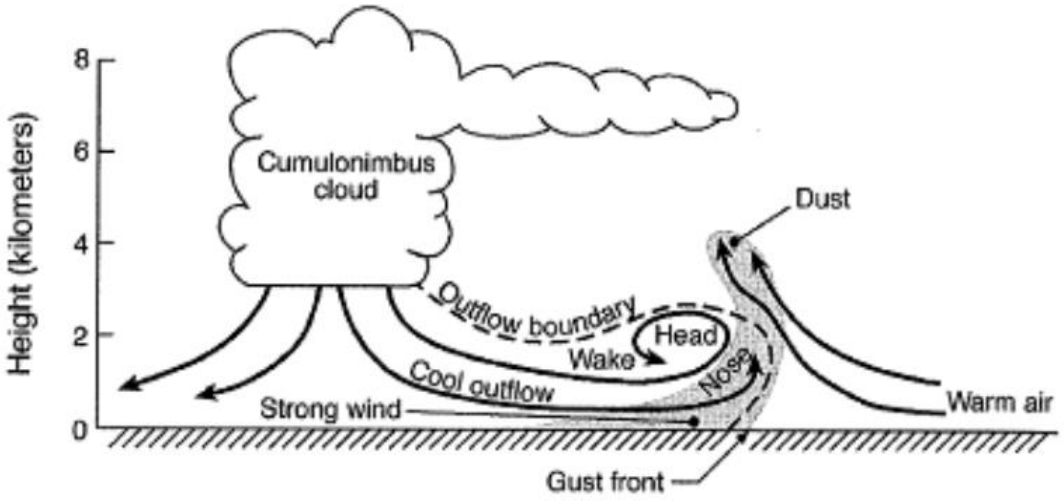


Figure 2-3. Average monthly temperatures and precipitation at Yuma MCAS, 1981–2010.

The influx of moisture associated with a monsoon, combined with strong solar heating, can result in unstable atmospheric conditions favorable for the development of thunderstorms. Heavy precipitation associated with thunderstorms, and the eventual collapse or dissipation of thunderstorms, can generate downbursts. Downbursts are rapid descents of rain-cooled air in a thunderstorm. Upon reaching the surface, this air rapidly disperses horizontally away from the storm as outflow boundaries (also called gust fronts; see **Figure 2-4**). The high winds associated with outflow boundaries can efficiently loft dust into the air and transport the dust over long distances, resulting in dust storms (also called haboobs) with high PM_{10} concentrations and low visibilities.



Cross-section schematic of a haboob caused by the cool outflow from a thunderstorm, with the leading edge that is propagating ahead of the storm called an outflow boundary. The strong, gusty winds that prevail at the boundary are defined as a gust front. The leading edge of the cool air is called the nose, and the upward-protruding part of the features is referred to as the head. Behind the roll in the windfield at the leading edge is a turbulent wake. The rapidly moving cool air and the gustiness at the gust front raise dust (shaded) high into the atmosphere.

Figure 2-4. Cross-section of a thunderstorm creating an outflow boundary and haboob.[1]

Dust storms associated with these thunderstorms typically occur in the early part of the monsoon season (July) before rains moisten the soil and limit potential lofting of soil into the air. However, depending on the amount and frequency of precipitation received during the monsoon season, extremely hot temperatures can dry the surface soils very quickly; thus, dust storms can occur at any time during the year. Specific PM_{10} source regions are difficult to determine during thunderstorm-driven dust storms because the thunderstorm outflow can carry dust over long distances that encompass many possible sources of dust. Instead, we consider general PM_{10} source regions, which are typically identified based on the locations of the thunderstorms that are believed to have generated the dust-laden outflow winds.

2.3 Event Day Summary

During the early morning hours of July 10, 2013, gusty winds generated by a cluster of showers and thunderstorms over northwestern Mexico and far southern Arizona transported dust northwestward into the Yuma area (**Figure 2-5**). The showers and thunderstorms responsible for the strong winds weakened as they moved toward Yuma; as a result, no measureable rain was recorded. The windblown dust resulted in a 24-hr average PM_{10} concentration of 159 µg/m^3 at the Yuma Supersite monitor; this value is in exceedance of the NAAQS (**Table 2-1**). The hourly and 24-hr average PM_{10} concentrations measured at the Yuma

[1] Image source: Warner T.T. (2004). *Desert meteorology*. Cambridge University Press, Cambridge, UK.

Supersite monitor were in excess of normal historical fluctuations. The dust was naturally occurring and likely originated over undeveloped lands of southwestern Arizona and northwestern Mexico outside the city of Yuma. Sustained winds of 30 mph, with wind gusts as high as 38 mph, overwhelmed reasonable dust control measures. Gusty winds were also reported in portions of southeastern California during this event. The Yuma MCAS surface meteorological site reported haze (HZ) for several hours on July 10, 2013, coincident with peak PM_{10} concentrations (see Appendix A).

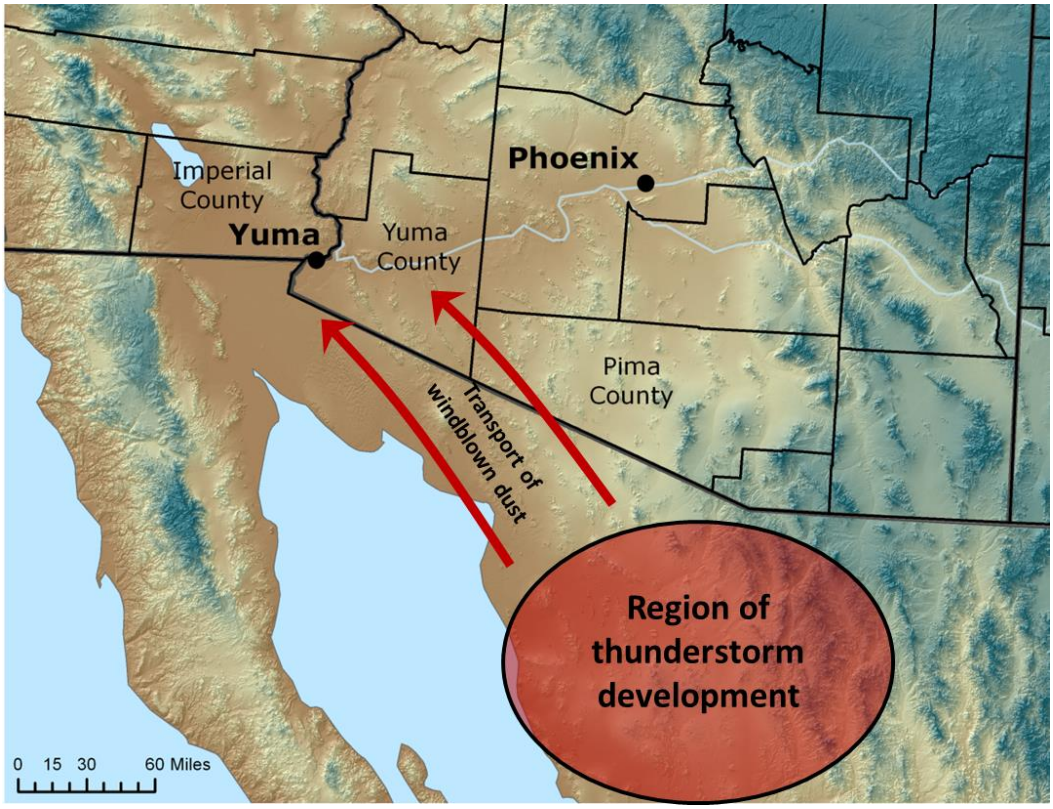


Figure 2-5. Gusty southeasterly winds generated by thunderstorms over northwestern Mexico transported dust into the Yuma area on the morning of July 10, 2013.

Table 2-1. PM_{10} measurements collected in Arizona and southeastern California on July 10, 2013. Data from the Yuma Supersite monitor are shown in **bold green**.

Monitor	Monitor Type	Operator	AQS Monitor ID	24-hr Avg PM_{10} ($\mu g/m^3$)	1-hr Max PM_{10} ($\mu g/m^3$)	Time of Max 1-hr PM_{10} (MST)	AQS Qualifier Flag
ARIZONA							
Apache County							
N/A	TEOM	WMAT	04-001-1003-81102-1	14	N/A	N/A	
Cochise County							
Douglas Red Cross	TEOM	ADEQ	04-003-1005-81102-3	15	40	1900	
Paul Spur Chemical Line Plant	TEOM	ADEQ	04-003-0011-81102-3	14	54	2000	
Gila County							
Miami Golf Course	TEOM	ADEQ	04-007-8000-81102-3	79	220	0400	
Maricopa County							
West Phoenix	TEOM	MCAQD	04-013-0019-81102-1	38	72	0700	
Mesa	TEOM	MCAQD	04-013-1003-81102-1	52	N/A	N/A	
North Phoenix	BAM	MCAQD	04-013-1004-81102-1	35	N/A	N/A	
Glendale	TEOM	MCAQD	04-013-2001-81102-1	47	N/A	N/A	
Central Phoenix	TEOM	MCAQD	04-013-3002-81102-4	45	83	0700	
South Scottsdale	GRAV	MCAQD	04-013-3003-81102-1	42	N/A	N/A	
Greenwood	TEOM	MCAQD	04-013-3010-81102-1	45	73	0700	
South Phoenix	TEOM	MCAQD	04-013-4003-81102-1	45	77	0300	
West Chandler	TEOM	MCAQD	04-013-4004-81102-1	52	276	0300	
Tempe	TEOM	MCAQD	04-013-4005-81102-1	45	N/A	N/A	
Higley	TEOM	MCAQD	04-013-4006-81102-1	60	210	0300	
West 43rd Ave	TEOM	MCAQD	04-013-4009-81102-1	41	71	1400	
Dysart	TEOM	MCAQD	04-013-4010-81102-1	53	102	2000	
Buckeye	TEOM	MCAQD	04-013-4011-81102-1	56	128	0700	
Zuni Hills	TEOM	MCAQD	04-013-4016-81102-1	48	95	1300	
Fort McDowell/ Yuma Frank	TEOM	FMIR	04-013-5100-81102-3	37	67	1600	
Durango Complex	TEOM	MCAQD	04-013-9812-81102-1	38	59	1200	
JLG Supersite	TEOM	ADEQ	04-013-9997-81102-3	45	85	0800	
Mojave County							
Bullhead City	TEOM	ADEQ	04-015-1003-81102-1	73	162	1200	
Navajo County							
N/A	TEOM	WMAT	04-017-1002-81102-1	17	N/A	N/A	

Table 2-1. PM_{10} measurements collected in Arizona and southeastern California on July 10, 2013. Data from the Yuma Supersite monitor are shown in **bold green**.

Monitor	Monitor Type	Operator	AQS Monitor ID	24-hr Avg PM_{10} ($\mu g/m^3$)	1-hr Max PM_{10} ($\mu g/m^3$)	Time of Max 1-hr PM_{10} (MST)	AQS Qualifier Flag
Pima County							
Ajo	TEOM	ADEQ	04-019-0001-81102-3	23	60	0000	
Green Valley	TEOM	PCDEQ	04-019-1030-81102-1	11	21	1400	
Rillito	TEOM	ADEQ	04-019-0020-81102-3	46	350	1600	
Orange Grove	GRAV	PCDEQ	04-019-0011-81102-2	23	N/A	N/A	
South Tucson	GRAV	PCDEQ	04-019-1001-81102-1	17	N/A	N/A	
Geronimo	TEOM	PCDEQ	04-019-1113-81102-1	24	N/A	N/A	
Santa Cruz County							
Nogales Post Office	TEOM	ADEQ	04-023-0004-81102-3	15	31	1400	
Yuma County							
Yuma Supersite	**TEOM**	**ADEQ**	**04-027-8011-81102-3**	**159**	**1066**	**0400**	**RJ**
CALIFORNIA							
Imperial County							
Brawley-Main Street #2	GRAV	ICAPCD	06-025-0007-85101-1	73	173	1200	
Niland-English Road	BAM	ICAPCD	06-025-4004-85101-1	73	168	0400	

BAM: Beta Attenuation Monitor
FMIR: Fort McDowell Indian Reservation
FRM: Federal Reference Method
GRAV: Gravimetric Analysis
GRIC: Gila River Indian Community
ICAPCD: Imperial County Air Pollution Control District
IJ: qualifier flag for high winds (for information only)
MCAQD: Maricopa County Air Quality Department
MDAQMD: Mojave Desert Air Quality Management District
PCAQCD: Pinal County Air Quality Control District
PCDEQ: Pima County Department of Environmental Quality
RJ: qualifier flag for high winds (for data exclusion)
SRPMIC: Salt River Pima-Maricopa Indian Community
TEOM: Tapered Element Oscillating Microbalance
WMAT: White Mountain Apache Tribe

3. Causal Relationship

3.1 Discussion

Meteorological and air quality observations indicate that dust carried by gusty winds generated by an area of showers and thunderstorms over northwestern Mexico and southwestern Arizona was directly responsible for the high PM_{10} concentrations observed in Yuma on July 10, 2013. On the evening of July 9, a large complex of thunderstorms was moving westward along the Arizona/Mexico border, as seen on infrared satellite (**Figure 3-1**) and Doppler radar (**Figure 3-2**) imagery. These thunderstorms weakened to showers as they moved westward toward the Yuma area, but generated an outflow boundary that lofted dust and transported it northwestward into the Yuma area. The likely source region for PM_{10} during the July 10, 2013, event was the desert of southwestern Arizona and far northwestern Mexico, which largely consists of natural, undisturbed desert. The last time Yuma recorded any measurable rainfall leading up to the July 10, 2013, high-wind event was on March 8, 2013, when showers associated with a Pacific storm system produced 0.08 inches of rain at the Yuma MCAS. This combination of geography and lack of rainfall preceding the event resulted in a large fetch of soils that were particularly vulnerable to particulate suspension.

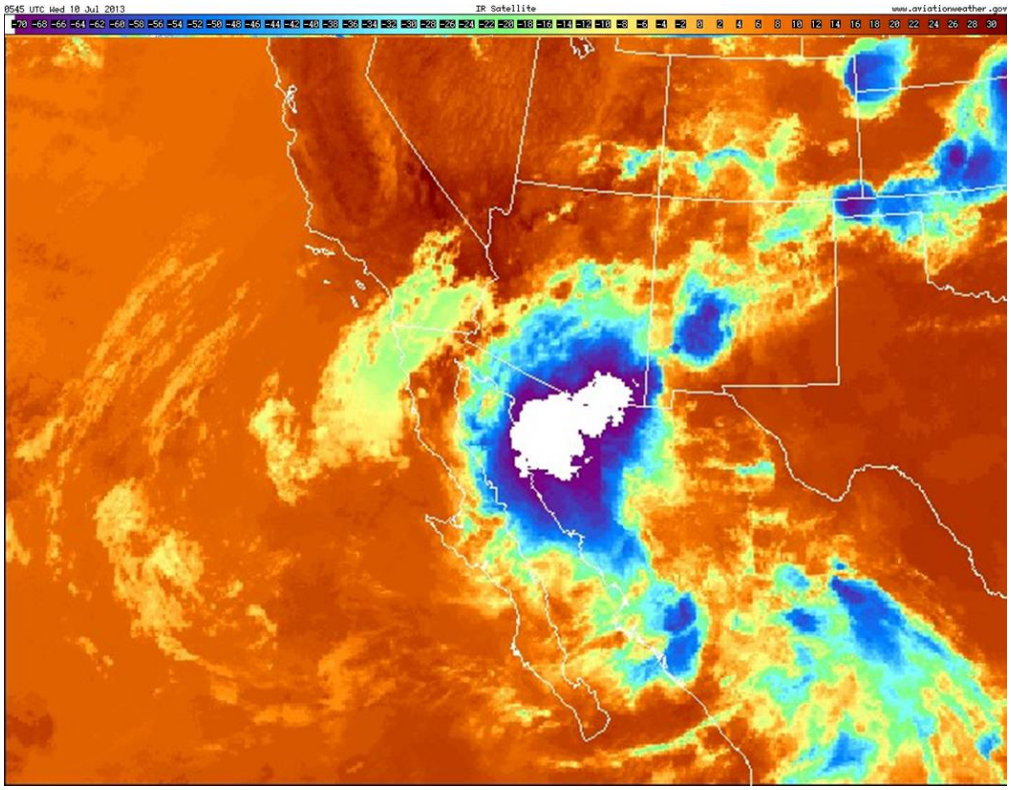


Figure 3-1. Infrared satellite image from 22:45 Mountain Standard Time (MST) on July 10, 2013 (GOES-West). Blue, purple, and white areas indicate cold cloud tops associated with convection. A large complex of thunderstorms was moving westward along the Arizona/Mexico border.

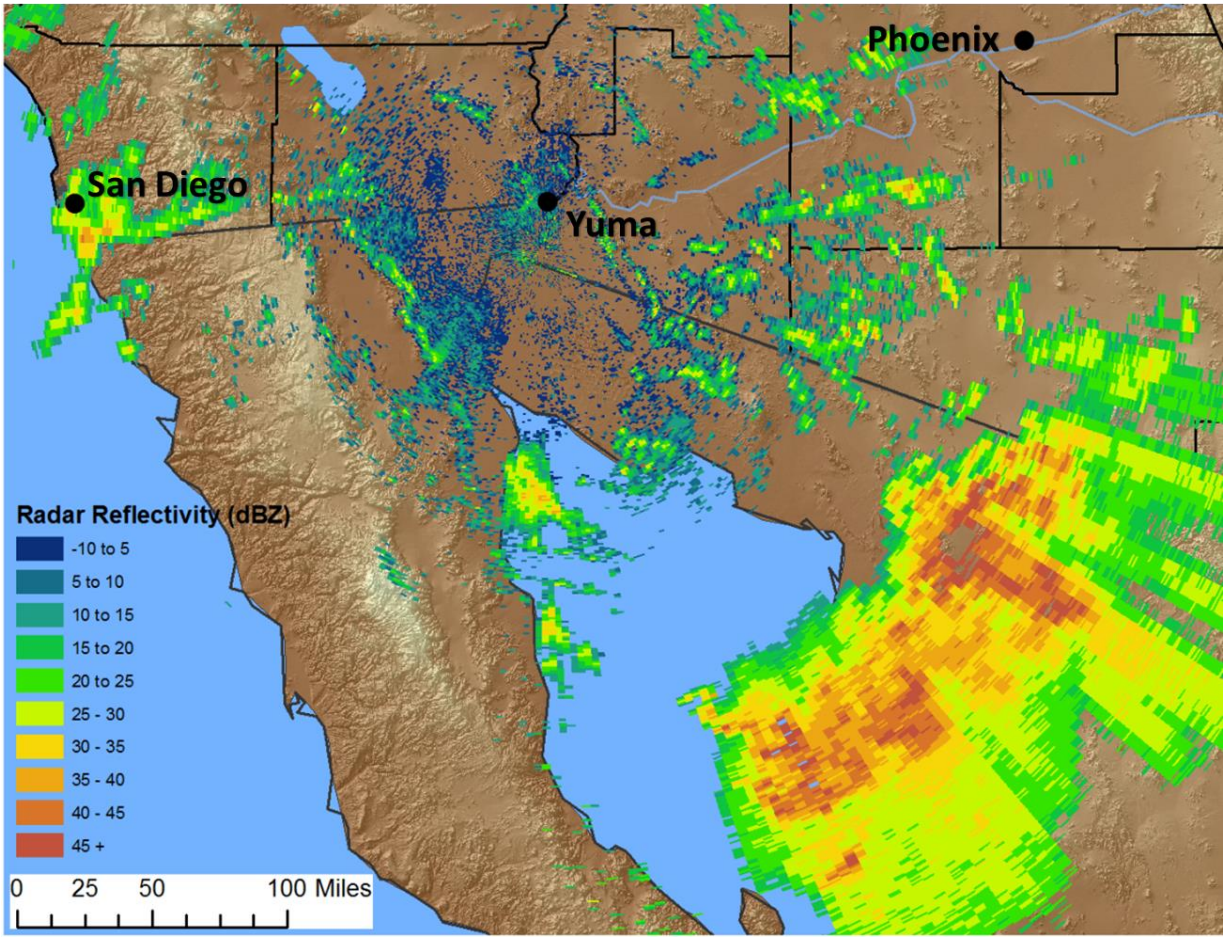


Figure 3-2. Radar reflectivity data from 00:39 MST on July 10, 2013. The radar returns indicated strong thunderstorms over northwestern Mexico and scattered showers over southwestern Arizona, moving northwest.

Figures 3-3 through 3-5 illustrate wind, visibility, PM_{10}, and radar velocity data in southern California and southwestern Arizona, including Yuma before and during the windblown dust event. Just after midnight on July 10, 2013, the outflow and associated dust had not yet arrived in Yuma (Figure 3-3). At that time, winds were light, visibilities were high, and PM_{10} concentrations were low in the Yuma area. By 02:00 on July 10, 2013, the outflow and associated windblown dust arrived in the Yuma area (Figure 3-4). During the 02:00 to 03:00 period on July 10, monitors in the Yuma area recorded sustained winds above 25 mph, wind gusts of up to 38 mph, visibilities below 5 miles, and hourly PM_{10} concentrations that exceeded 600 µg/m^3. Radar velocity data also indicated strong near-ground winds throughout the region. PM_{10} concentrations in Yuma peaked during the 04:00 to 05:00 period, with an hourly average PM_{10} concentration of over 1,000 µg/m^3. While winds were not as strong this hour compared to previous hours, wind gusts of over 20 mph were still reported in the Yuma area. In addition, gusty winds also reached Imperial County, illustrating the regional nature of the event. The showers and thunderstorms responsible for the gusty winds and subsequent dust weakened significantly as they moved northwestward; as a result, no measureable rainfall occurred in the Yuma area.

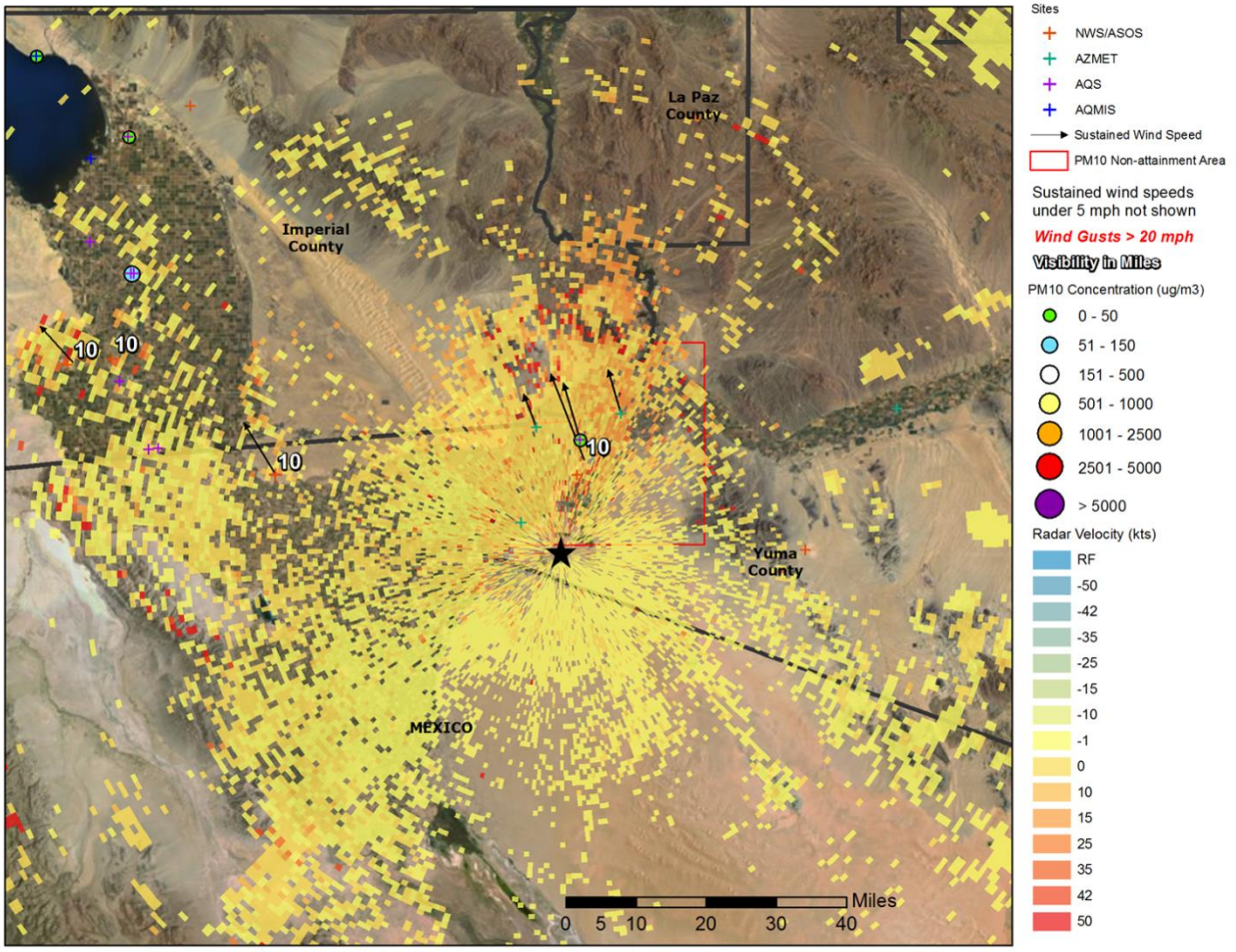


Figure 3-3. Observations at Yuma and Imperial county monitors between 00:00 MST and 01:00 MST on July 10, 2013, of hourly PM_{10} concentrations (colored circles), wind speed and direction (arrows), maximum wind gusts (red numbers; however, no strong winds were occurring at the time depicted in this plot), and minimum visibility (white numbers). Also shown are radar velocity data from the NWS Doppler radar in Yuma, where cool colors indicate motion toward the radar, and warm colors indicate motion away from the radar. The black star denotes the location of the radar.

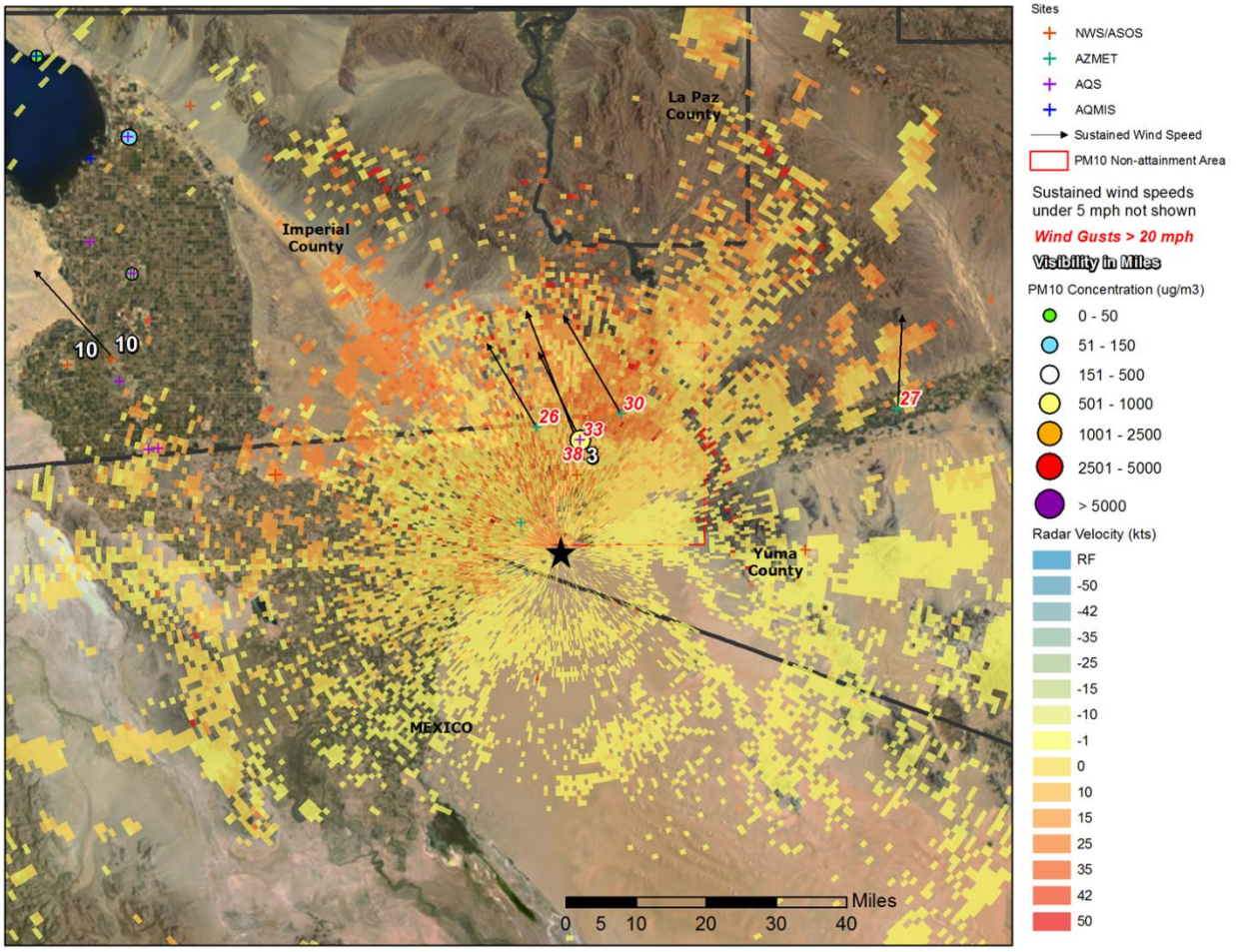


Figure 3-4. Observations at Yuma and Imperial county monitors between 02:00 MST and 03:00 MST on July 10, 2013, of hourly PM_{10} concentrations (colored circles), wind speed and direction (arrows), maximum wind gusts (red numbers), and minimum visibility (white numbers). Also shown are radar velocity data from the NWS Doppler radar in Yuma, where cool colors indicate motion toward the radar, and warm colors indicate motion away from the radar. The black star denotes the location of the radar.

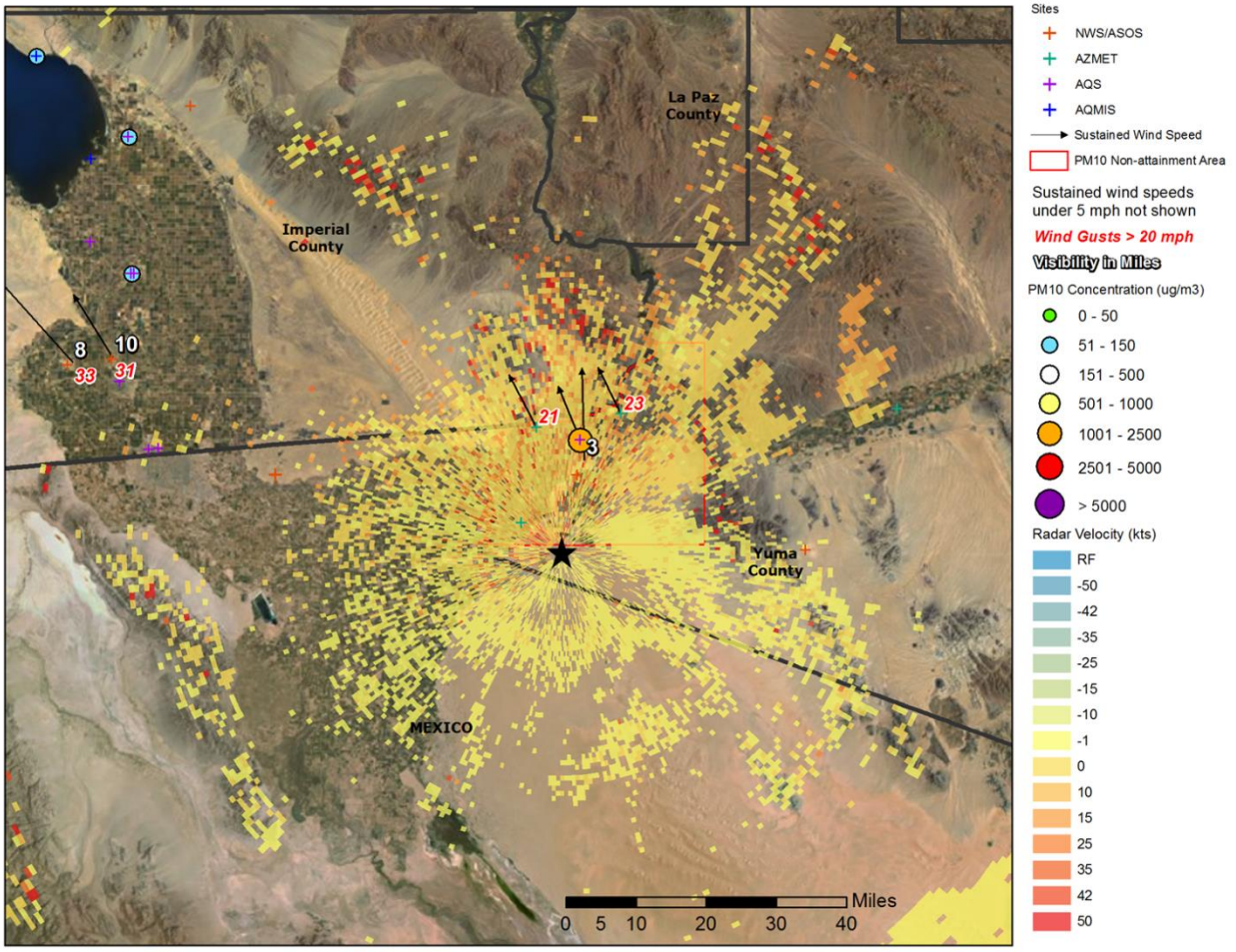


Figure 3-5. Observations at Yuma and Imperial county monitors between 04:00 MST and 05:00 MST on July 10, 2013, of hourly PM_{10} concentrations (colored circles), wind speed and direction (arrows), maximum wind gusts (red numbers), and minimum visibility (white numbers). Also shown are radar velocity data from the NWS Doppler radar in Yuma, where cool colors indicate motion toward the radar, and warm colors indicate motion away from the radar. The black star denotes the location of the radar.

A summary of maximum sustained winds and peak wind gusts at monitors in southwestern Arizona and southeastern California is shown in **Table 3-1**, including sustained winds of 30 mph and a peak gust of 38 mph at the Yuma MCAS. Other monitors in the local Yuma area measured sustained winds of around 20 mph and wind gusts above 25 mph (**Figure 3-6, Figure 3-7,** and Appendix A). Visibility at the Yuma MCAS also decreased significantly with the arrival of the dust (**Figure 3-8**). Furthermore, haze was reported at the Yuma MCAS site. ADEQ operates two visibility cameras in the Yuma area[2]. Since this event occurred overnight, still images from these cameras do not adequately capture the reduction in visibility. However, when viewed as a time-lapse video, a temporary reduction in visibility is

[2] Archived time-lapse video of visibility cameras in the Yuma area can be viewed online: http://www.phoenixvis.net/tlapse.aspx?site=YUMA2

evident between 03:00 and 05:00 MST based on the dimming of light sources in Yuma. This timing is consistent with the arrival of windblown dust in Yuma.

Gusty winds and elevated PM_{10} concentrations were reported in neighboring Imperial County roughly one hour after occurring in Yuma (**Figure 3-9**), consistent with the movement of the windblown dust. The NWS office in Phoenix issued a Special Weather Statement for the Yuma area during this period due to the potential for gusty winds, blowing dust, and reduced visibilities (Appendix B). Note that gusty winds, reduced visibilities, and an increase in PM_{10} concentrations also occurred in the Yuma area early on July 9; these conditions were associated with a separate thunderstorm outflow. While PM_{10} concentrations did not exceed the NAAQS on July 9, it is likely that the gusty winds disturbed and loosened surface soils, making the soils more susceptible to particulate suspension by the gusty winds associated with the thunderstorm outflow that affected the Yuma area on July 10. In addition, the increase in wind speeds during the July 9 event was more gradual than what occurred during the July 10 event, which may also account for the lower PM_{10} concentrations observed early on July 9 compared to early on July 10.

3.2 Summary

The information presented in this section demonstrates a clear causal relationship between the windblown dust and the PM_{10} exceedance measured at the Yuma Supersite monitor on July 10, 2013. The PM_{10}, wind, and visibility data shown in this section illustrate the spatial and temporal representation of the blowing dust as it moved through southwestern Arizona and southeastern California. The strong winds observed in the Yuma area were generated by showers and thunderstorms over northwestern Mexico and southwestern Arizona. These storms weakened and produced no measureable rain in Yuma. Strong winds likely lofted large amounts of dust and PM_{10} into the lower atmosphere, and the winds were strong enough to overwhelm reasonable control measures. This dust likely originated in open desert areas in southwestern Arizona and far northwestern Mexico, and was transported into Yuma by gusty southeasterly winds. In addition, the time-series plots of air quality and meteorological data found in this section and in Appendix A show that the sharp increase in PM_{10} concentrations coincided with high wind speeds and reduced visibilities.

Table 3-1. Observed wind speeds and wind gusts at southwestern Arizona and southeastern California monitors on July 10, 2013. The Yuma Supersite monitor reported a PM_{10} concentration of 1,065 µg/m^3 at 4:00 MST on July 10, 2013.

Monitor	Maximum Wind Speed (mph)	Wind Direction (degrees)	Maximum Wind Gust (mph)	Time (MST)
Yuma MCAS	30	160	38	1:57
Yuma Supersite	18	156	34	2:00
Yuma North Gila	21	151	30	2:00
Blythe Airport	25	190	32	2:52
Imperial County Airport	25	150	31	2:53

El Centro NAF	24	140	33	2:56
Yuma Valley	19	169	26	3:00
Niland-English Road	28	136	n/a	n/a

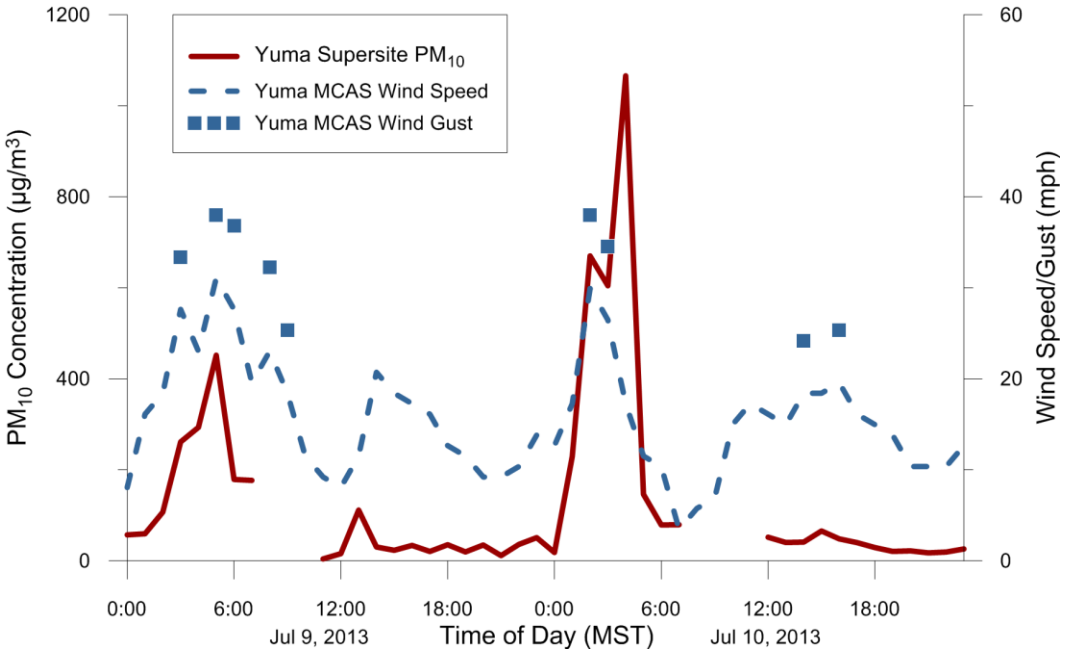


Figure 3-6. Hourly PM_{10} concentrations at the Yuma Supersite monitor and wind speeds at the Yuma MCAS monitor on July 9 and 10, 2013. PM_{10} concentrations and wind speeds sharply increased early on July 10, 2013, indicating the arrival of windblown dust.

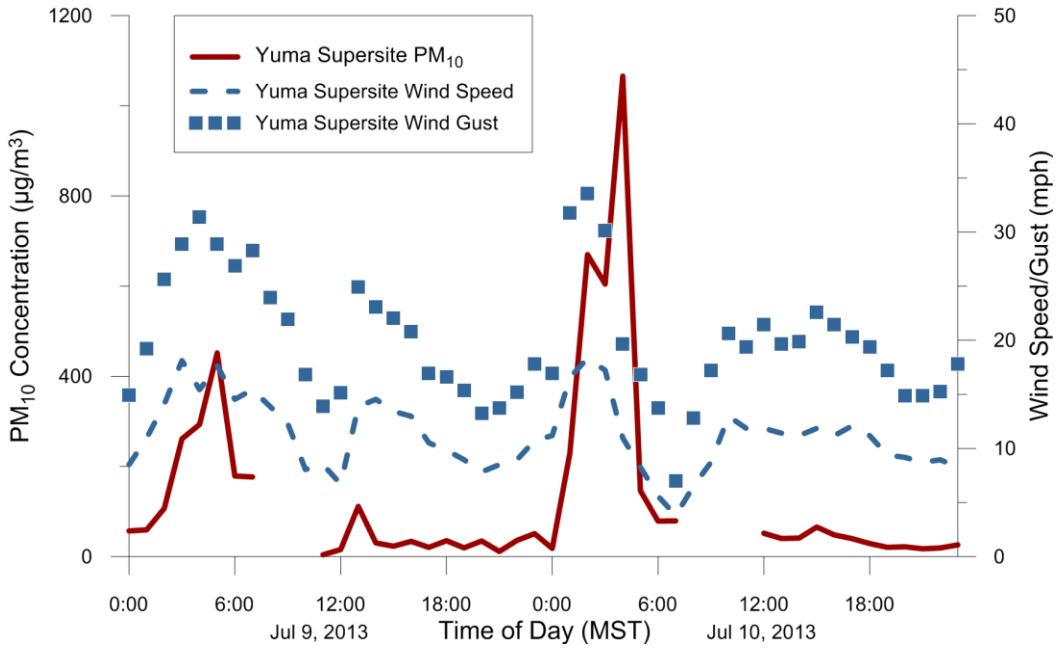


Figure 3-7. Hourly PM_{10} concentrations and wind speeds at the Yuma Supersite monitor July 9 and 10, 2013. PM_{10} concentrations and wind speeds sharply increased early on July 10, 2013, indicating the arrival of windblown dust.

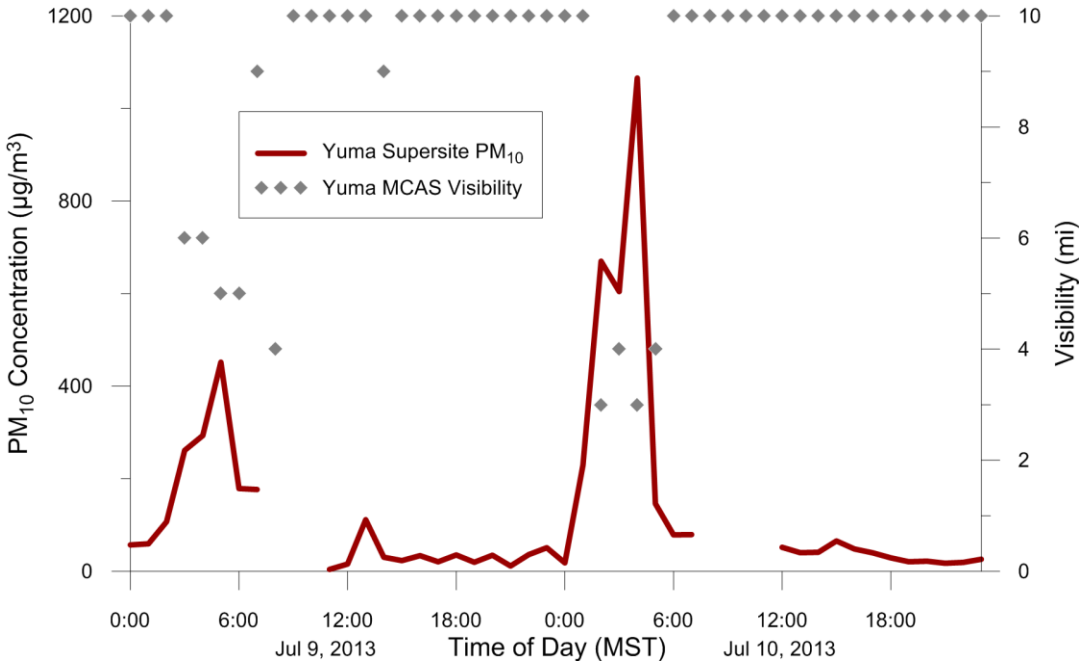


Figure 3-8. Hourly PM_{10} concentrations at the Yuma Supersite monitor and visibility at Yuma MCAS on July 9 and 10, 2013. Visibility was sharply reduced early on July 10, 2013, coincident with the sharp increase in PM_{10} concentrations at the Yuma Supersite monitor, indicating the arrival of windblown dust.

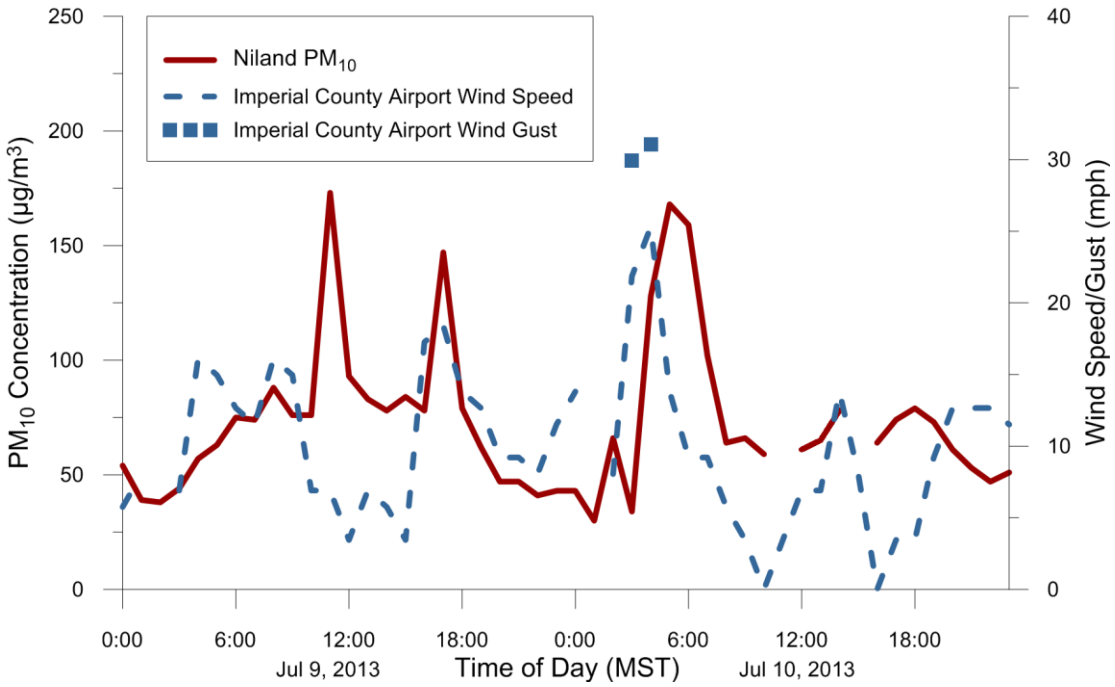


Figure 3-9. Hourly PM_{10} concentrations at the Niland monitor and wind speeds at the Imperial County Airport on July 9 and 10, 2013. PM_{10} increased coincident with gusty winds in Imperial County early on July 10, 2013, shortly after similar conditions were observed in Yuma. These conditions are consistent with the movement of windblown dust generated by outflow from showers and thunderstorms southeast of the region.

4. Historical Norm

4.1 Analysis

PM_{10} concentrations measured at the Yuma Supersite monitor on July 10, 2013, were unusual and in excess of normal historical fluctuations. The PM_{10} concentrations measured on July 10, 2013, were some of the highest hourly and 24-hr averages measured over the last five years, with hourly concentrations exceeding 1,000 µg/m^3. To establish the severity of this event, PM_{10} concentrations measured on July 10, 2013, were compared to a historical 2008–2013 data set (**Figure 4-1**). The 24-hr average PM_{10} concentration on July 10, 2013, is the twenty-fifth highest daily average during the January 2008 to July 2013 time period, and the fourth highest daily average in January through July 2013.

A historical daily cumulative distribution of the 24-hr average PM_{10} concentrations was created for the Yuma County monitor for the January 2008 to July 2013 period to provide additional evidence in establishing the severity of this event. **Figure 4-2** shows a histogram of 24-hr average PM_{10} concentrations at the Yuma County monitor and the corresponding 95th percentile. The 24-hr average PM_{10} concentration on July 10, 2013, was about twice the 95th percentile at this monitor. Concentrations in excess of the 95th percentile are considered to be unusual.[3]

4.2 Summary

Given the recorded values and using similar methodology to the one accepted by EPA, it is clear that the PM_{10} levels on July 10, 2013, were outside of normal historical fluctuations. This analysis provides evidence that the event affected air quality on a historic scale.

[3] Excluding days on which concentrations caused by exceptional events exceed the 95th percentile threshold employs a general test of statistical significance and has the effect of ensuring that such concentrations would clearly fall beyond the range of normal expectations for air quality during a particular time of year. Source: "The treatment of Data Influenced by Exceptional Events," 71 FR 12598.

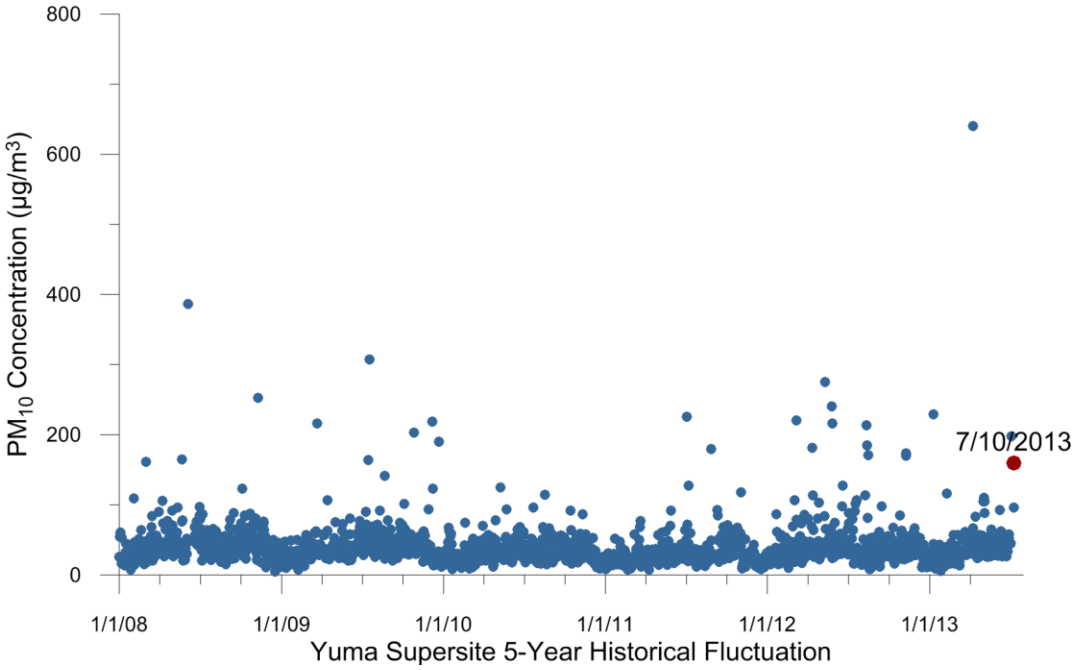


Figure 4-1. 24-hr average PM_{10} concentrations at the Yuma Supersite monitor for 2008-2013. The 24-hr average PM_{10} concentration on July 10, 2013, is in red.

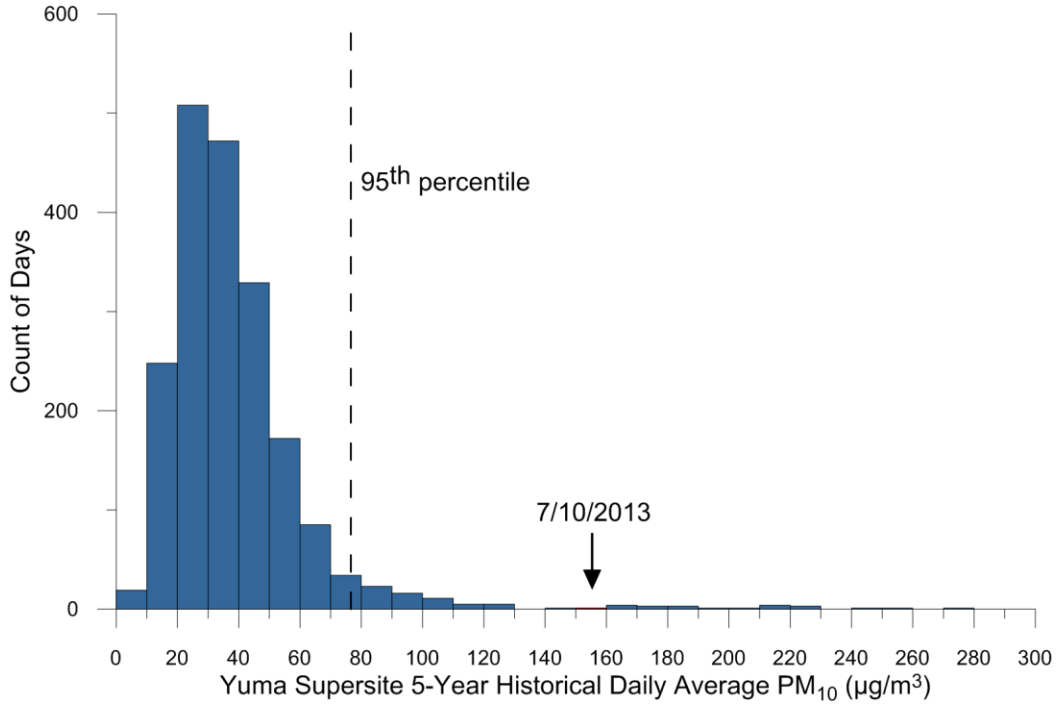


Figure 4-2. 24-hr average PM_{10} concentrations at the Yuma Supersite monitor for 2008-2013. The 24-hr average PM_{10} concentration on July 10, 2013, was about two times the 95th percentile.

5. Not Reasonably Controllable or Preventable

5.1 Background

Yuma was designated as a moderate PM_{10} nonattainment area by operation of the 1990 Clean Air Act. The nonattainment area is defined in 40 CFR 481.303. ADEQ completed a state implementation plan (SIP) for the area in 1991; however, the plan was found to be incomplete. In 1994, ADEQ updated the plan, identifying additional reasonably available control measures (RACM). In 2001, due to several years of "clean data" and the existence of permanent and enforceable measures, ADEQ began to develop a maintenance plan and a request for redesignation of the area to attainment. The maintenance plan was submitted to EPA in August 2006.

5.1.1 Control Measures

Details of the control measures implemented from 1994 to 2001 are in Appendix G of the 2006 Yuma PM_{10} Maintenance Plan. The control measures are listed in **Table 5-1**.

Table 5-1. Control measures implemented in the Yuma PM_{10} Nonattainment Area, 1994–2001.

Implementing Agency	Reasonably Available Control Measure
City of Yuma	Paving unpaved roads
	Closing unpaved roads
	Chemically stabilizing unpaved roads
	Paving or stabilizing parking lots
	Re-routing traffic or rapid cleanup of temporary sources of dust and spills
	Covering haul trucks
	Dust control plans for land clearing and construction projects
	Stabilizing soil; controlling dust on open lands
	Amending building codes
Town of Somerton	Re-routing traffic or rapid cleanup of temporary sources of dust and spills
	Covering haul trucks
	Dust control plans for land clearing and construction projects
	Stabilizing soil
Yuma County	Paving unpaved roads
	Stabilizing unpaved roads
	Re-routing traffic or rapid cleanup of temporary sources of dust and spills
	Covering haul trucks
	Open Burn Permit Program (rural metro)
Irrigation Districts	Reducing traffic on unpaved roads
AZ Dept. of Transportation	Requiring contractors to adhere to local dust control plans

RACM for 2000 through 2004 can be found in Table 6.3 of the 2006 Yuma PM_{10} Maintenance Plan and are reproduced in part in **Table 5-2**. Chapter 7 of the maintenance plan also contains a list of contingency measures that could be implemented promptly should any violation of the NAAQS for PM_{10} occur.

Table 5-2. Control measures implemented in the Yuma area, 2000–2004.

Implementing Agency	Reasonably Available Control Measure
City of Yuma	Pave unpaved roads
	Pave unpaved alleys
	Pave unpaved vacant land
	Chemically stabilize unpaved roads
	Water shoulders
	Street sweep paved roads
	Install curbs and sidewalks
	Landscape median
	Magnesium chloride on alleys
	Magnesium chloride on city property
Town of Somerton	Water unpaved roads
	Water unpaved shoulders
	Pave unpaved roads
	Weekly cleanup of paved roads, mud, trackout, spills
	Pave unpaved lots
	Landscape shoulders
	Install curbs
	Pave/stabilize unpaved roads
	Chip/seal
	Magnesium chloride on unpaved roads
	Street sweeping
Yuma County	Pave unpaved roads
	Developers add new paved roads
	Chip/seal unpaved roads
	Magnesium chloride unpaved roads
	Street sweeping

Table 5-2. Control measures implemented in the Yuma area, 2000–2004.

Implementing Agency	Reasonably Available Control Measure
Immigration & Naturalization	Water drag roads
	Pipelined
	Maintain 350 “No Trespassing” signs and 50 barricades
	Patrol and water unpaved canal roads
	3 miles posted/barricaded
	Paved 2.5 miles
	2.5 miles fenced off
	Abandoned 3/8 mile
	Lined 8 miles of canal
N. Gila Irrigation District	20 miles posted
Unit B Irrigation District	3 miles posted/barricaded
Bureau of Reclamation	Water 960 miles of canal banks
Marine Corps Air Station	Remove 26 gas vehicles
	Remove 25 gas scooters
	Pave 240,329-ft roadway
	Pave 102,112-ft parking
	Sweeping 717,221-yd runway
	Sweeping 388,952-yd taxiway
	Sweeping 401,090-yd aprons and 121,380-yd other
	Stabilize desert

In 2010, the Yuma Metropolitan Planning Organization (YMPO) updated the Transportation Improvement Plan (TIP) as required to comply with the requirements for transportation conformity under Section 176(c)(2) of the Clean Air Act. The update required a review of control measures included in the 2006 Yuma PM_{10} Maintenance Plan to assure that emissions were within the limits found in both plans for the current review years through the 2016 projected maintenance period. Yuma’s plans related to transportation improvements can be found under “Plans and Reports” at ympo.org.

5.1.2 Additional Measures

On August 18, 2002, Yuma recorded a 24-hr average PM_{10} concentration of 170 µg/m^3, which is in exceedance of the NAAQS. A Natural Events Action Plan (NEAP) was created to address and potentially implement any measures that could prevent future violations of the NAAQS. The option to develop a NEAP is no longer available; however, Yuma reviewed existing measures and developed additional measures that were later incorporated into the 2006 PM_{10} Maintenance Plan. These included

1. a public notification and education program, still in place today, and augmented recently by a pilot flag program for public schools and facilities based on the Yuma Dust Control Action Forecast (Appendices D, E, and F of the 2006 Yuma PM_{10} Maintenance Plan);
2. an analysis of best available control measures (BACM) normally reserved for serious nonattainment areas; and
3. a review of existing control measures for construction sources, street sweepers, paved roads, covered trucks, off-highway vehicles, stationary source opacity limits, other stationary source control measures, and agricultural best management practices (Appendix H of the 2006 Yuma PM_{10} Maintenance Plan).

In 2002, ADEQ met with Yuma stakeholders and began work on the development of a Yuma Agricultural Best Management Practices (AgBMP) rule. The rule became effective July 18, 2005, as R18-2-613 of the Arizona Administrative Code, and was submitted to EPA on August 16, 2006.

5.1.3 Review of Source-Permitted Inspections and Public Complaints

ADEQ's Arizona Unified Repository for Information Tracking of the Environment (AZURITE) database was queried to compile a list of inspections for the permitted sources in the Yuma area around the time of the July 10, 2013, PM_{10} exceedance. An evaluation of all inspection reports, air quality complaints, compliance reports, and other documentation indicate no evidence of unusual anthropogenic-based PM_{10} emissions. ADEQ inspectors conducted one routine inspection of a permitted source in Yuma County on July 12, 2013, and found no evidence of unusual anthropogenic-based PM_{10} emissions.

5.2 Forecasts and Warnings

Dust forecasts were released prior to the event by both ADEQ and the NWS office in Phoenix (Appendix B). The ADEQ Yuma and Vicinity Dust Control Action Forecast issued on Monday, July 8, 2013, stated that "short periods of high PM_{10} concentrations caused by outflow from thunderstorms" was possible from July 8 through July 10, 2013. The NWS issued a Special Weather Statement warning of the potential for gusty winds of up to 35 mph, with localized blowing dust and visibilities reduced to under 5 miles, from 2:10 to 5:00 MST on July 10, 2013.

5.3 Wind Observations

Wind data during the event were available at four Yuma-area monitors, including one AQS site, one NWS site, and two AZMET sites (Figure 3-3 and Appendix A). Sustained wind speeds of up to 30 mph, with wind gusts of up to 38 mph, were reported at the Yuma MCAS during the event. The Yuma North Gila, Yuma Supersite, Imperial County Airport, El Centro NAF, and Blythe Airport monitors also reported wind gusts of at least 30 mph. Wind speeds of over 25 mph are normally sufficient to overcome most PM_{10} control measures.

5.4 Summary

The weather and air quality forecasts and statements outlined in this section demonstrate that gusty winds associated with monsoon showers caused uncontrollable PM_{10} emissions. The RACM outlined in the Yuma PM_{10} Maintenance Plan were in place at the time of the event. These control measures are required for areas designated as Moderate nonattainment for PM_{10}, such as Yuma County. Thus, the RACM in place at the time of the event were reasonable. In addition, surface wind measurements in the Yuma area during the event were high enough (at or above 25 mph) that most reasonable PM_{10} control measures would have been overwhelmed.

6. But-For Analysis

6.1 Discussion

Section 50.14(c)(3)(iv)(D) in 40 CFR Part 50 requires that an exceptional event demonstration satisfies that "[t]here would have been no exceedance or violation but for the event." The prior sections of this submittal have provided detailed information that, in regard to the PM_{10} exceedance at the Yuma Supersite monitor on July 10, 2013,

- the exceedance was not reasonably controllable or preventable, and
- there was a clear causal relationship between PM_{10} transported by gusty southeasterly winds originating in desert areas outside the Yuma PM_{10} Nonattainment Area and the measured PM_{10} exceedance in Yuma.

The weight of evidence in these sections demonstrates that, but for the existence of dust emissions generated by gusty winds due to outflow from weakening monsoon showers and thunderstorms and the associated transport of PM_{10}, there would have been no exceedance of the NAAQS for 24-hr average PM_{10}.

As shown in Section 3, time-series plots of PM_{10} and wind speeds establish a clear causal relationship between the arrival of dust-laden winds and elevated PM_{10} concentrations at the Yuma Supersite monitor. Multiple independent measurements of wind speed, wind direction, and visibility all point to the presence of southeasterly winds as the mechanism for transport of PM_{10} into the Yuma PM_{10} Nonattainment Area. Elevated PM_{10} concentrations and gusty winds were also reported in adjacent southeastern California, illustrating the widespread, regional nature of this event. In addition, PM_{10} concentrations were well below the NAAQS on days immediately before and after the windblown dust event. The source regions for the PM_{10} are clearly identified as open desert areas southeast of Yuma, outside the Yuma PM_{10} Nonattainment Area. The weight of evidence presented in this submittal provides no alternative that could tie the exceedance of July 10, 2013, to any causal source except PM_{10} transported by southeasterly winds, confirming that there would have been no exceedance but for the presence of these uncontrollable natural events.

As detailed in Section 5, all reasonable control measures were in place and/or implemented on a continual basis. Air quality-related inspection and compliance data revealed no violations or complaints within three days before and after the time of the event. Local regulatory agencies, industry, and the general public were alerted to the possibility of blowing dust due to thunderstorm outflow via daily forecasts and media reports.

6.2 Summary

The weight of evidence presented in this submittal provides no alternative that could tie the exceedance of July 10, 2013, to any causal source except PM_{10} transported by southeasterly winds, confirming that there would have been no exceedance but for the presence of these uncontrollable natural events.

7. Conclusions

The PM_{10} exceedance that occurred on July 10, 2013, satisfies the criteria of the EER, which states that in order to justify the exclusion of air quality monitoring data, evidence must be provided for the following elements:

1. The event satisfies the criteria set forth in 40 CFR 50.1(j) that
   a. the event affected air quality,
   b. the event was not reasonably controllable or preventable, and
   c. the event was caused by human activity unlikely to recur in a particular location or was a natural event;
2. There is a clear causal relationship between the measurement(s) under consideration and the event;
3. The event is associated with a measured concentration(s) in excess of normal historical fluctuations; and
4. There would have been no exceedance or violation but for the event.

7.1 Affects Air Quality

As stated in the preamble to the EER, the event in question is considered to have affected air quality if it can be shown that there is a clear causal relationship between the monitored exceedance and the event, and that the event is associated with a measured concentration in excess of normal historical fluctuations. Given the information presented in Sections 2, 3, 4, and 5, we can reasonably conclude that the event in question affected air quality.

7.2 Not Reasonably Controllable or Preventable

Section 50.1(j) of 40 CFR Part 50 requires that an event must be “not reasonably controllable or preventable” in order to be defined as an exceptional event. This requirement is met by demonstrating that, despite reasonable control measures in place within Yuma County, high winds overwhelmed all reasonably available controls. The PM_{10} exceedance discussed in this report was caused by naturally occurring gusty southeasterly winds that transported dust into Yuma County from areas largely outside the Yuma PM_{10} Nonattainment Area. These facts provide strong evidence that the PM_{10} exceedance on July 10, 2013, was not reasonably controllable or preventable.

7.3 Natural Event

As discussed above, the PM_{10} exceedance in Yuma on July 10, 2013, was shown to be caused by transport of PM_{10} into Yuma by southeasterly winds associated with outflow from monsoon showers and thunderstorms. The event therefore qualifies as a natural event.

7.4 Clear Causal Relationship

The following points demonstrate that the high PM_{10} concentrations were caused by windblown dust:

- Time-series of PM_{10} concentrations show that the timing of high PM_{10} concentrations at the Yuma Supersite was consistent with gusty southeasterly winds and low visibilities at Yuma-area meteorological stations (Section 3).
- High PM_{10} concentrations and gusty winds were reported in Yuma County, Arizona, and Imperial and Riverside counties, California, illustrating the widespread, regional, and uncontrollable nature of this event (Section 3).
- PM_{10} concentrations were well below the NAAQS on days immediately before and after the windblown dust event (Section 3).
- Dry conditions preceding the event resulted in soils that were particularly susceptible to particulate suspension by high winds (Section 3).

7.5 Historical Norm

The 24-hr average and daily 1-hr maximum PM_{10} values measured at the Yuma Supersite monitor were historically unusual compared to a multi-year data set (Section 4).

7.6 Not Reasonably Preventable

PM_{10} control and prevention measures were in place in the Yuma PM_{10} Nonattainment Area at the time of the event. Measured wind speeds and wind gusts were of sufficient strength to overcome reasonable control measures (Section 5).

7.7 But For

On the basis of the weight of evidence described above and in Section 6, the exceedance of the federal 24-hr PM_{10} standard on July 10, 2013, at the Yuma Supersite monitor would not have occurred but for the period of gusty southeasterly winds that transported dust from open desert areas southeast of Yuma into the Yuma PM_{10} Nonattainment Area.

Appendix A:
Air Quality and Meteorological Data for Yuma County

This section contains time-series plots or graphs of air quality and meteorological data for Yuma and other regional monitors on July 9 and 10, 2013. The data show a region-wide increase in wind speeds and wind gusts coincident with the arrival of dust and high PM_{10} concentrations in Yuma.

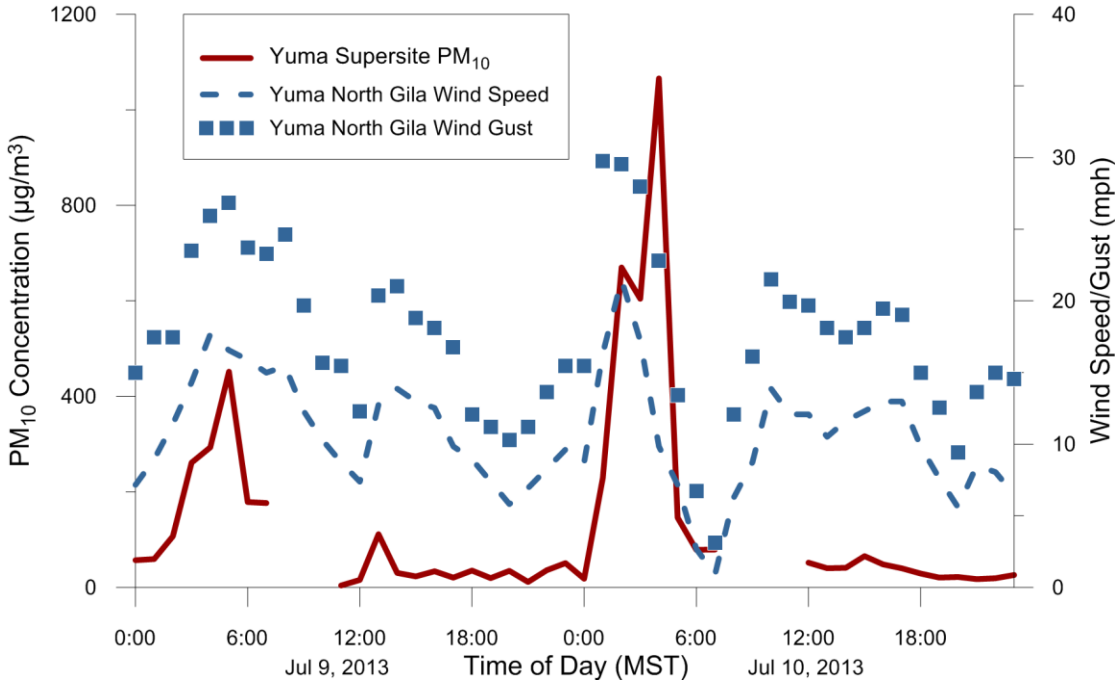


Figure A-1. Hourly PM_{10} concentrations at the Yuma Supersite monitor and wind speeds at the Yuma North Gila monitor on July 9 and 10, 2013. PM_{10} concentrations and wind speeds sharply increased early on July 10, 2013, indicating the arrival of windblown dust.

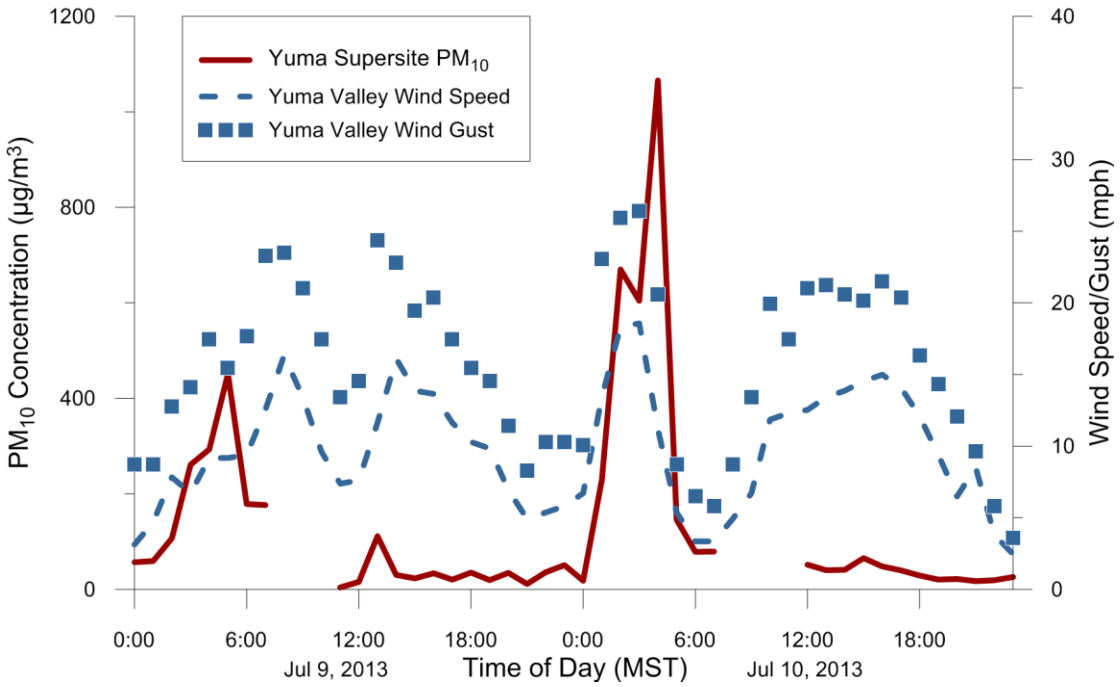


Figure A-2. Hourly PM_{10} concentrations at the Yuma Supersite monitor and wind speeds at the Yuma Valley monitor on July 9 and 10, 2013. PM_{10} concentrations and wind speeds sharply increased early on July 10, 2013, indicating the arrival of windblown dust.

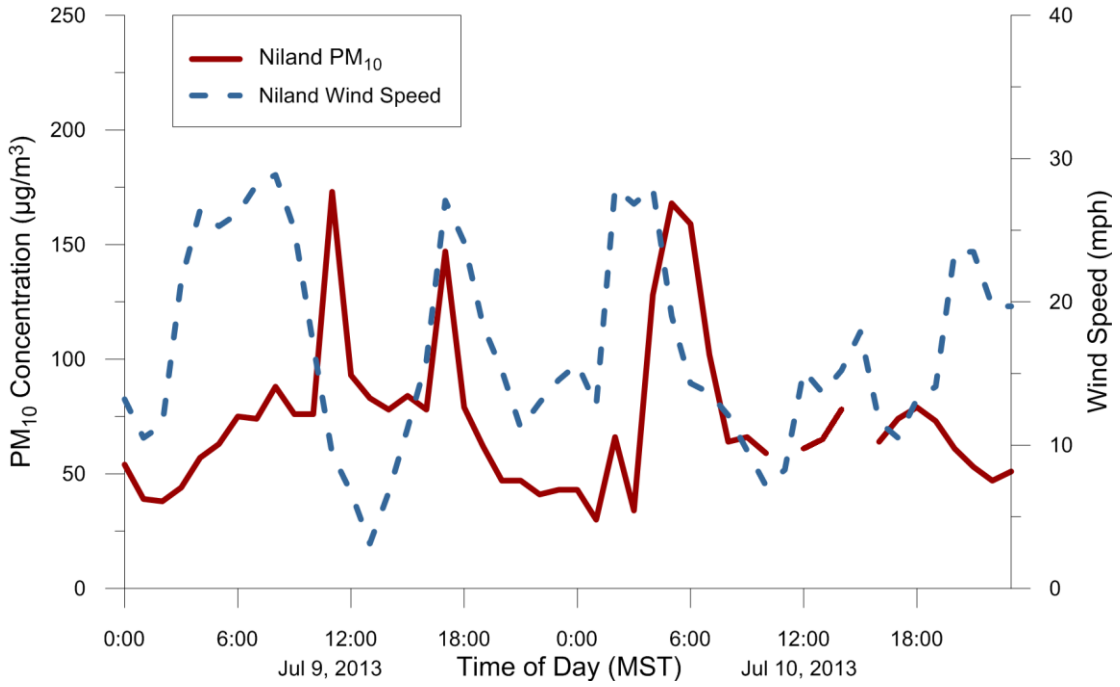


Figure A-4. Hourly PM_{10} concentrations and wind speeds at the Niland monitor on July 9 and 10, 2013.

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA
HOURLY OBSERVATIONS TABLE
YUMA MCAS (03145)
YUMA, AZ (07/09/2013)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 213 ft. above sea level
Latitude: 32.65
Longitude: -114.616
Data Version: VER2

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp		Wet Bulb Temp		Dew Point Temp		Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti-meter (in. hg)
						(F)	(C)	(F)	(C)	(F)	(C)											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
09	0057	5	SCT200	10.00		88	31.1	74	23.5	68	20.0	52	16	150		29.59			29.81	AA		29.82
09	0157	5	SCT200	10.00		87	30.6	75	24.0	70	21.1	57	18	150		29.59			29.81	AA		29.82
09	0257	5	FEW150 BKN200	6.00	HZ	86	30.0	74	23.2	68	20.0	55	28	150	33	29.60			29.82	AA		29.83
09	0357	5	SCT150 BKN200	6.00	HZ	85	29.4	74	23.3	69	20.6	59	23	150		29.63			29.84	AA		29.86
09	0457	5	SCT150 BKN200	5.00	HZ	86	30.0	74	23.5	69	20.6	57	31	170	38	29.65			29.87	AA		29.88
09	0557	5	SCT150 BKN200	5.00	DU	86	30.0	75	23.8	70	21.1	59	28	170	37	29.69			29.91	AA		29.92
09	0657	5	BKN150 BKN200	9.00		87	30.6	76	24.3	71	21.7	59	20	170		29.70			29.92	AA		29.93
09	0757	5	BKN150 BKN200	4.00	BLDU	88	31.1	75	23.8	69	20.6	53	23	170	32	29.72			29.94	AA		29.95
09	0857	5	BKN150 BKN200	10.00		92	33.3	75	23.8	67	19.4	44	18	170	25	29.73			29.95	AA		29.96
09	0957	5	BKN150 BKN200	10.00		90	32.2	74	23.5	67	19.4	47	11	180		29.73			29.95	AA		29.96
09	1057	5	BKN150 BKN200	10.00		94	34.4	75	24.1	67	19.4	41	9	190		29.73			29.94	AA		29.96
09	1157	5	BKN150 BKN200	10.00		96	35.6	74	23.5	64	17.8	35	8	190		29.71			29.93	AA		29.94
09	1257	5	BKN150 BKN200	10.00		102	38.9	75	23.8	62	16.7	27	11	180		29.69			29.91	AA		29.92
09	1357	5	BKN150 BKN200	9.00		99	37.2	76	24.5	66	18.9	34	21	170		29.69			29.90	AA		29.92
09	1457	5	BKN150 BKN200	10.00		99	37.2	74	23.4	62	16.7	30	18	180		29.67			29.89	AA		29.90
09	1557	5	BKN150 BKN200	10.00		99	37.2	75	23.6	63	17.2	31	17	190		29.65			29.86	AA		29.88
09	1657	5	SCT150 BKN200	10.00		96	35.6	75	23.8	65	18.3	36	16	180		29.62			29.84	AA		29.85
09	1757	5	SCT150 BKN200	10.00		96	35.6	75	23.8	65	18.3	36	13	190		29.60			29.82	AA		29.83
09	1857	5	BKN150 BKN200	10.00		94	34.4	75	23.8	66	18.9	40	11	190		29.59			29.80	AA		29.82
09	1957	5	BKN150 BKN200	10.00		91	32.8	75	23.6	67	19.4	45	9	200		29.58			29.80	AA		29.81
09	2057	5	BKN150 BKN200	10.00		89	31.7	75	24.0	69	20.6	52	9	170		29.59			29.81	AA		29.82
09	2157	5	BKN150 BKN200	10.00		88	31.1	74	23.2	67	19.4	50	10	170		29.61			29.83	AA		29.84
09	2257	5	FEW150 BKN200	10.00		87	30.6	75	24.0	70	21.1	57	14	170		29.63			29.84	AA		29.86
09	2357	5	FEW150 BKN200	10.00		85	29.4	76	24.4	72	22.2	65	13	160		29.63			29.84	AA		29.86

Figure A-5. Quality-controlled local climatological data hourly observations table for Yuma MCAS, Yuma, AZ (07/09/2013). Note in the Weather Type column that HZ (haze), DU (dust), and blowing dust (BLDU) were reported, coincident with gusty winds and low visibilities. Specific visibility obstructions (such as blowing dust) are manually entered by human observers and are not reported automatically. Dynamically generated via http://cdo.ncdc.noaa.gov/qclcd/QCLCD.

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA
HOURLY OBSERVATIONS TABLE
YUMA MCAS (03145)
YUMA, AZ (07/10/2013)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 213 ft. above sea level
Latitude: 32.65
Longitude: -114.616
Data Version: VER2

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp		Wet Bulb Temp		Dew Point Temp		Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti-meter (in. hg)
						(F)	(C)	(F)	(C)	(F)	(C)											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
10	0057	5	FEW150 BKN200	10.00		84	28.9	76	24.2	72	22.2	67	17	160		29.63			29.85	AA		29.86
10	0157	5	OVC100	3.00	HZ	85	29.4	76	24.4	72	22.2	65	30	160	38	29.67			29.88	AA		29.90
10	0257	5	BKN100	4.00	HZ	85	29.4	75	24.0	71	21.7	63	26	160	34	29.68			29.90	AA		29.91
10	0357	5	BKN100	3.00	HZ	84	28.9	76	24.2	72	22.2	67	17	180		29.64			29.85	AA		29.87
10	0457	5	SCT100 BKN150	4.00	HZ	82	27.8	71	21.9	66	18.9	58	11	160		29.67			29.89	AA		29.90
10	0557	5	BKN150 BKN200	10.00		82	27.8	72	22.2	67	19.4	61	10	160		29.67			29.89	AA		29.90
10	0657	5	BKN120 BKN200	10.00		82	27.8	72	22.2	67	19.4	61	3	160		29.66			29.88	AA		29.89
10	0757	5	BKN120 BKN200	10.00		84	28.9	73	22.9	68	20.0	59	6	140		29.68			29.90	AA		29.91
10	0857	5	BKN120 BKN200	10.00		87	30.6	74	23.3	68	20.0	53	7	170		29.69			29.91	AA		29.92
10	0957	5	BKN120 BKN200	10.00		90	32.2	74	23.2	66	18.9	45	15	170		29.69			29.91	AA		29.92
10	1057	5	BKN120 BKN200	10.00		90	32.2	75	23.8	68	20.0	48	17	190		29.69			29.91	AA		29.92
10	1157	5	SCT120 BKN200	10.00		95	35.0	76	24.2	67	19.4	40	16	190		29.68			29.89	AA		29.91
10	1257	5	FEW120 BKN200	10.00		96	35.6	74	23.2	63	17.2	34	15	180		29.66			29.87	AA		29.89
10	1357	5	FEW150 BKN200 BKN250	10.00		99	37.2	74	23.4	62	16.7	30	18	200	24	29.63			29.85	AA		29.86
10	1457	5	FEW150 BKN200 BKN250	10.00		101	38.3	74	23.1	60	15.6	26	18	200		29.60			29.82	AA		29.83
10	1557	5	FEW150 BKN200 BKN250	10.00		100	37.8	74	23.2	61	16.1	28	20	210	25	29.58			29.79	AA		29.81
10	1657	5	FEW150 BKN200 BKN250	10.00		99	37.2	74	23.3	62	16.7	30	16	210		29.56			29.78	AA		29.79
10	1757	5	FEW150 SCT200 SCT250	10.00		97	36.1	74	23.3	63	17.2	33	15	200		29.55			29.77	AA		29.78
10	1857	5	FEW150 SCT200 BKN250	10.00		95	35.0	74	23.0	63	17.2	35	14	200		29.56			29.78	AA		29.79
10	1957	5	FEW150 SCT200 BKN250	10.00		92	33.3	73	22.6	63	17.2	38	10	200		29.56			29.78	AA		29.79
10	2057	5	SCT200 BKN250	10.00		90	32.2	73	22.9	65	18.3	44	10	190		29.58			29.80	AA		29.81
10	2157	5	BKN200 BKN250	10.00		88	31.1	73	22.5	65	18.3	47	10	170		29.60			29.82	AA		29.83
10	2257	5	BKN200 BKN250	10.00		88	31.1	72	22.2	64	17.8	45	13	180		29.60			29.82	AA		29.83
10	2357	5	BKN200 BKN250	10.00		87	30.6	72	22.4	65	18.3	48	10	190		29.60			29.82	AA		29.83

Figure A-6. Quality-controlled local climatological data hourly observations table for Yuma MCAS, Yuma, AZ (07/10/2013). Note in the Weather Type column that HZ (haze) was reported, coincident with gusty winds and low visibilities. Specific visibility obstructions (such as blowing dust) are manually entered by human observers and are not reported automatically. Dynamically generated via http://cdo.ncdc.noaa.gov/qclcd/QCLCD.

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA
HOURLY OBSERVATIONS TABLE
IMPERIAL COUNTY AIRPORT (03144)
IMPERIAL, CA (07/09/2013)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: -58 ft. below sea level
Latitude: 32.834
Longitude: -115.578
Data Version: VER2

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp		Wet Bulb Temp		Dew Point Temp		Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti-meter (in. hg)
						(F)	(C)	(F)	(C)	(F)	(C)											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
09	0053	12	CLR	10.00		89	31.7	76	24.7	71	21.7	55	6	150		29.83			29.77	AA		29.77
09	0154	12	M	10.00		86	30.0	78	25.2	74	23.3	68	7	140		29.84			29.78	AA		29.78
09	0253	12	CLR	10.00		85	29.4	77	25.1	74	23.3	70	16	130		29.87			29.81	AA		29.81
09	0353	12	CLR	10.00		85	29.4	78	25.5	75	23.9	72	15	140		29.89			29.83	AA		29.83
09	0453	12	CLR	10.00		85	29.4	79	25.8	76	24.4	75	13	140		29.93			29.87	AA		29.87
09	0553	12	CLR	10.00		85	29.4	79	26.2	77	25.0	77	11	130		29.95			29.89	AA		29.89
09	0653	12	CLR	10.00		87	30.6	80	26.5	77	25.0	72	16	140		29.96			29.91	AA		29.90
09	0753	12	CLR	10.00		90	32.2	80	26.6	76	24.4	64	15	140		29.98			29.93	AA		29.92
09	0853	12	CLR	10.00		93	33.9	79	26.3	74	23.3	54	7	170		29.99			29.93	AA		29.93
09	0953	12	CLR	10.00		96	35.6	80	26.7	74	23.3	49	7	290		29.98			29.92	AA		29.92
09	1053	12	CLR	10.00		99	37.2	80	26.7	73	22.8	43	3	VR		29.97			29.91	AA		29.91
09	1153	12	CLR	10.00		99	37.2	80	26.4	72	22.2	42	7	350		29.96			29.90	AA		29.90
09	1253	12	CLR	10.00		99	37.2	80	26.7	73	22.8	43	6	060		29.94			29.88	AA		29.88
09	1353	12	CLR	10.00		99	37.2	79	26.1	71	21.7	41	3	160		29.92			29.86	AA		29.86
09	1453	12	CLR	10.00		99	37.2	80	26.4	72	22.2	42	17	140		29.89			29.83	AA		29.83
09	1553	12	CLR	10.00		95	35.0	79	26.2	73	22.8	49	18	140		29.88			29.82	AA		29.82
09	1653	12	CLR	10.00		96	35.6	79	26.3	73	22.8	48	14	140		29.85			29.79	AA		29.79
09	1753	12	CLR	10.00		95	35.0	79	26.2	73	22.8	49	13	140		29.84			29.78	AA		29.78
09	1853	12	CLR	10.00		93	33.9	79	25.9	73	22.8	52	9	130		29.83			29.77	AA		29.77
09	1953	12	CLR	10.00		91	32.8	78	25.6	73	22.8	56	9	120		29.84			29.78	AA		29.78
09	2053	12	CLR	10.00		90	32.2	78	25.5	73	22.8	57	8	120		29.85			29.79	AA		29.79
09	2153	12	CLR	10.00		88	31.1	79	25.9	75	23.9	65	11	120		29.87			29.81	AA		29.81
09	2253	12	CLR	10.00		88	31.1	79	25.9	75	23.9	65	14	130		29.87			29.81	AA		29.81
09	2353	12	CLR	10.00		87	30.6	80	26.5	77	25.0	72	9	140		29.86			29.80	AA		29.80

Figure A-7. Quality-controlled local climatological data hourly observations table for the Imperial County Airport, Imperial, CA (07/09/2013). Dynamically generated via http://cdo.ncdc.noaa.gov/qclcd/QCLCD.

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA
HOURLY OBSERVATIONS TABLE
IMPERIAL COUNTY AIRPORT (03144)
IMPERIAL, CA (07/10/2013)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: -58 ft. below sea level
Latitude: 32.834
Longitude: -115.578
Data Version: VER2

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp		Wet Bulb Temp		Dew Point Temp		Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti-meter (in. hg)
						(F)	(C)	(F)	(C)	(F)	(C)											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
10	0053	12	CLR	10.00		86	30.0	79	26.0	76	24.4	72	8	100		29.87			29.81	AA		29.81
10	0153	12	CLR	10.00		85	29.4	79	25.8	76	24.4	75	22	140	30	29.92			29.86	AA		29.86
10	0253	12	CLR	10.00		85	29.4	78	25.5	75	23.9	72	25	150	31	29.92			29.86	AA		29.86
10	0353	12	CLR	10.00		85	29.4	77	24.7	73	22.8	67	14	150		29.90			29.84	AA		29.84
10	0453	12	CLR	10.00		84	28.9	77	24.9	74	23.3	72	9	110		29.92			29.86	AA		29.86
10	0553	12	CLR	10.00		84	28.9	77	24.9	74	23.3	72	9	120		29.92			29.87	AA		29.86
10	0653	12	CLR	10.00		85	29.4	77	25.1	74	23.3	70	6	070		29.94			29.88	AA		29.88
10	0753	12	CLR	10.00		86	30.0	78	25.6	75	23.9	70	3	100		29.95			29.89	AA		29.89
10	0853	12	CLR	10.00		88	31.1	79	25.9	75	23.9	65	0	000		29.95			29.89	AA		29.89
10	0953	12	CLR	10.00		90	32.2	79	25.8	74	23.3	59	3	VR		29.94			29.88	AA		29.88
10	1053	12	CLR	10.00		93	33.9	80	26.6	75	23.9	56	7	VR		29.93			29.87	AA		29.87
10	1153	12	CLR	10.00		95	35.0	80	26.5	74	23.3	51	7	120		29.91			29.85	AA		29.85
10	1253	12	CLR	10.00		95	35.0	80	26.5	74	23.3	51	14	120		29.89			29.83	AA		29.83
10	1353	12	CLR	10.00		95	35.0	79	26.2	73	22.8	49	8	210		29.87			29.81	AA		29.81
10	1414	12	FEW004	2.50	HZ	97	36.0	80	26.5	73	23.0	46	8	200		29.86			M	SP		29.80
10	1428	12	FEW004	10.00		97	36.0	80	26.5	73	23.0	46	5	200		29.85			M	SP		29.79
10	1453	12	CLR	10.00		96	35.6	79	26.0	72	22.2	46	0	000		29.84			29.78	AA		29.78
10	1553	12	CLR	10.00		97	36.1	79	25.8	71	21.7	43	3	200		29.82			29.76	AA		29.76
10	1653	12	CLR	10.00		98	36.7	78	25.6	70	21.1	40	3	220		29.80			29.74	AA		29.74
10	1753	12	CLR	10.00		98	36.7	78	25.6	70	21.1	40	9	140		29.80			29.75	AA		29.74
10	1853	12	CLR	10.00		93	33.9	77	24.9	70	21.1	47	13	130		29.81			29.75	AA		29.75
10	1953	12	CLR	6.00	HZ	91	32.8	77	24.9	71	21.7	52	13	140		29.82			29.76	AA		29.76
10	2053	12	CLR	10.00		89	31.7	76	24.7	71	21.7	55	13	150		29.84			29.78	AA		29.78
10	2153	12	CLR	10.00		89	31.7	75	24.0	69	20.6	52	11	150		29.85			29.79	AA		29.79
10	2253	12	CLR	9.00		88	31.1	76	24.2	70	21.1	55	9	140		29.84			29.78	AA		29.78
10	2353	12	CLR	10.00		86	30.0	76	24.2	71	21.7	61	10	130		29.85			29.79	AA		29.79

Figure A-8. Quality-controlled local climatological data hourly observations table for the Imperial County Airport, Imperial, CA (07/10/2013). Specific visibility obstructions (such as blowing dust) are manually entered by human observers and are not reported automatically. Dynamically generated via http://cdo.ncdc.noaa.gov/qclcd/QCLCD.

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA
HOURLY OBSERVATIONS TABLE
NAF (23199)
EL CENTRO, CA (07/09/2013)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: -42 ft. below sea level
Latitude: 32.816
Longitude: -115.683
Data Version: VER2

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp		Wet Bulb Temp		Dew Point Temp		Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti-meter (in. hg)
						(F)	(C)	(F)	(C)	(F)	(C)											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
09	0056	5	M	10.00		87	30.6	71	21.5	62	16.7	43	5	140		29.82			29.82	AA		29.78
09	0156	5	M	10.00		86	30.0	73	22.5	66	18.9	51	5	160		29.82			29.82	AA		29.78
09	0256	5	M	10.00		83	28.3	77	24.8	74	23.3	74	9	110		29.85			29.85	AA		29.81
09	0356	5	M	10.00		84	28.9	77	24.9	74	23.3	72	11	130		29.87			29.87	AA		29.83
09	0456	5	FEW070 SCT160 BKN250	10.00		84	28.9	78	25.3	75	23.9	74	14	120		29.90			29.91	AA		29.86
09	0556	5	FEW070 SCT160 BKN250	10.00		85	29.4	79	25.8	76	24.4	75	11	120	20	29.93			29.93	AA		29.89
09	0656	5	FEW150 BKN250	10.00		87	30.6	79	26.1	76	24.4	70	11	120		29.94			29.95	AA		29.90
09	0756	5	SCT250	10.00		90	32.2	80	26.6	76	24.4	64	8	130		29.97			29.97	AA		29.93
09	0856	5	FEW150 SCT250	10.00		92	33.3	78	25.8	73	22.8	54	3	VR		29.97			29.98	AA		29.93
09	0956	5	FEW150 SCT250	10.00		95	35.0	79	26.2	73	22.8	49	0	000		29.97			29.97	AA		29.93
09	1056	5	FEW080 SCT150 BKN250	10.00		99	37.2	80	26.4	72	22.2	42	6	VR		29.96			29.96	AA		29.92
09	1156	5	FEW080 SCT150 BKN250	10.00		98	36.7	79	25.9	71	21.7	42	3	VR		29.94			29.94	AA		29.90
09	1256	5	SCT150 BKN250	10.00		100	37.8	78	25.3	68	20.0	35	3	VR		29.92			29.93	AA	T	29.88
09	1356	5	SCT150 BKN250	10.00		99	37.2	79	26.1	71	21.7	41	6	130		29.90			29.91	AA		29.86
09	1400	5	BKN	10.00		99	37.0	M	M	72	22.0	M	6	130		M			29.91	AA		29.86
09	1400	5	SCT150 BKN200	10.00		100	38.0	80	26.5	72	22.0	41	8	120		29.90			M	SP		29.86
09	1456	5	SCT150 BKN200	10.00		99	37.2	79	26.1	71	21.7	41	5	110		29.87			29.87	AA		29.83
09	1556	5	SCT100 BKN150 BKN200	9.00		95	35.0	79	26.2	73	22.8	49	15	140		29.85			29.86	AA		29.81
09	1656	5	FEW100 SCT150	10.00		94	34.4	80	26.4	74	23.3	52	10	130		29.83			29.83	AA		29.79
09	1756	5	SCT120 BKN150	10.00		93	33.9	79	26.3	74	23.3	54	8	130		29.81			29.82	AA		29.77
09	1856	5	SCT120 BKN150	10.00		91	32.8	79	26.0	74	23.3	58	7	120		29.81			29.82	AA		29.77
09	1956	5	BKN120 BKN150	10.00		89	31.7	78	25.3	73	22.8	59	6	110		29.82			29.82	AA		29.78
09	2056	5	SCT120 BKN150	10.00		89	31.7	78	25.3	73	22.8	59	5	090		29.83			29.83	AA		29.79
09	2156	5	SCT120 BKN150	9.00		88	31.1	77	25.2	73	22.8	61	9	110		29.84			29.85	AA		29.80
09	2256	5	M	10.00		88	31.1	78	25.5	74	23.3	63	8	120		29.85			29.86	AA		29.81
09	2356	5	M	10.00		86	30.0	78	25.6	75	23.9	70	9	140		29.85			29.85	AA		29.81

Figure A-9. Quality-controlled local climatological data hourly observations table for the Naval Air facility (NAF), El Centro, CA (07/09/2013). Dynamically generated via http://cdo.ncdc.noaa.gov/qclcd/QCLCD.

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA
HOURLY OBSERVATIONS TABLE
NAF (23199)
EL CENTRO, CA (07/10/2013)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: -42 ft. below sea level
Latitude: 32.816
Longitude: -115.683
Data Version: VER2

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp		Wet Bulb Temp		Dew Point Temp		Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti-meter (in. hg)
						(F)	(C)	(F)	(C)	(F)	(C)											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
10	0056	5	M	10.00		84	28.9	78	25.3	75	23.9	74	6	110		29.85			29.86	AA		29.81
10	0156	5	M	10.00		86	30.0	78	25.6	75	23.9	70	16	130	26	29.90			29.90	AA		29.86
10	0256	5	M	8.00		85	29.4	77	25.1	74	23.3	70	24	140	33	29.89			29.90	AA		29.85
10	0356	5	M	10.00		84	28.9	76	24.6	73	22.8	70	7	150		29.87			29.88	AA		29.83
10	0456	5	M	10.00		83	28.3	75	24.1	72	22.2	70	5	060		29.91			29.91	AA		29.87
10	0556	5	SCT100 BKN150 BKN200	10.00		84	28.9	76	24.6	73	22.8	70	5	070		29.91			29.91	AA		29.87
10	0656	5	SCT100 BKN150 BKN200	10.00		85	29.4	77	24.7	73	22.8	67	5	100		29.92			29.92	AA		29.88
10	0756	5	BKN150 OVC180	10.00		86	30.0	77	24.9	73	22.8	65	5	080		29.93			29.93	AA		29.89
10	0856	5	BKN150 BKN250	10.00		89	31.7	78	25.3	73	22.8	59	0	000		29.93			29.93	AA		29.89
10	0956	5	SCT080 BKN120 BKN250	10.00		91	32.8	78	25.6	73	22.8	56	0	000		29.92			29.93	AA		29.88
10	1056	5	FEW100 BKN150 BKN250	10.00		93	33.9	79	25.9	73	22.8	52	7	090		29.91			29.91	AA		29.87
10	1156	5	FEW100 BKN150 BKN250	10.00		96	35.6	79	26.3	73	22.8	48	6	160		29.89			29.90	AA		29.85
10	1256	5	FEW100 BKN150 BKN250	10.00		95	35.0	79	26.2	73	22.8	49	10	140		29.87			29.88	AA		29.83
10	1356	5	FEW100 BKN150	10.00		95	35.0	78	25.5	71	21.7	46	8	130		29.85			29.85	AA		29.81
10	1456	5	FEW100 BKN150	10.00		96	35.6	78	25.7	71	21.7	44	9	130		29.82			29.83	AA		29.78
10	1556	5	SCT150	10.00		98	36.7	78	25.6	70	21.1	40	7	120		29.79			29.80	AA		29.75
10	1656	5	FEW150	10.00		98	36.7	78	25.6	70	21.1	40	5	100		29.78			29.79	AA		29.74
10	1756	5	FEW150	10.00		98	36.7	78	25.3	69	20.6	39	0	000		29.78			29.79	AA		29.74
10	1856	5	FEW150	10.00		94	34.4	77	25.1	70	21.1	46	7	150		29.79			29.79	AA		29.75
10	1956	5	FEW150	10.00		89	31.7	76	24.7	71	21.7	55	9	140		29.80			29.80	AA		29.76
10	2056	5	FEW150	10.00		87	30.6	76	24.3	71	21.7	59	9	140		29.82			29.82	AA		29.78
10	2156	5	FEW150	10.00		87	30.6	75	23.7	69	20.6	55	8	140		29.83			29.84	AA		29.79
10	2256	5	M	10.00		86	30.0	74	23.5	69	20.6	57	7	140		29.83			29.83	AA		29.79
10	2356	5	M	10.00		85	29.4	75	23.7	70	21.1	61	5	130		29.83			29.84	AA		29.79

Figure A-10. Quality-controlled local climatological data hourly observations table for the NAF, El Centro, CA (07/10/2013). Dynamically generated via http://cdo.ncdc.noaa.gov/qclcd/QCLCD.

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA
HOURLY OBSERVATIONS TABLE
BLYTHE AIRPORT (23158)
BLYTHE, CA (07/09/2013)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 395 ft. above sea level
Latitude: 33.618
Longitude: -114.714
Data Version: VER3

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp		Wet Bulb Temp		Dew Point Temp		Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti-meter (in. hg)
						(F)	(C)	(F)	(C)	(F)	(C)											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
09	0052	12	CLR	10.00		90	32.2	73	22.8	65	18.3	44	17	180		29.38			29.78	AA		29.80
09	0152	12	CLR	10.00		87	30.6	71	21.7	63	17.2	45	15	180		29.40			29.79	AA		29.82
09	0252	12	CLR	10.00		86	30.0	71	21.9	64	17.8	48	14	180		29.41			29.80	AA		29.83
09	0352	12	CLR	10.00		88	31.1	72	21.9	63	17.2	43	15	180		29.44			29.83	AA		29.86
09	0452	12	CLR	8.00		86	30.0	73	22.8	67	19.4	53	22	190	32	29.48			29.87	AA		29.90
09	0552	12	CLR	8.00		86	30.0	75	23.8	70	21.1	59	23	180	33	29.52			29.91	AA		29.94
09	0652	12	CLR	7.00		88	31.1	76	24.5	71	21.7	57	21	190	26	29.54			29.94	AA		29.96
09	0752	12	CLR	10.00		91	32.8	76	24.6	70	21.1	50	17	180	25	29.56			29.95	AA		29.98
09	0852	12	CLR	10.00		93	33.9	77	24.9	70	21.1	47	14	170		29.56			29.95	AA		29.98
09	0952	12	CLR	10.00		95	35.0	77	25.2	70	21.1	44	11	170		29.55			29.94	AA		29.97
09	1052	12	CLR	10.00		97	36.1	77	25.1	69	20.6	40	14	160		29.53			29.92	AA		29.95
09	1152	12	CLR	10.00		97	36.1	77	24.8	68	20.0	39	15	160		29.51			29.91	AA		29.93
09	1252	12	CLR	10.00		100	37.8	77	24.9	67	19.4	34	16	150		29.49			29.89	AA		29.91
09	1352	12	CLR	10.00		103	39.4	77	24.7	65	18.3	29	13	160	20	29.46			29.86	AA		29.88
09	1452	12	CLR	10.00		104	40.0	75	23.8	61	16.1	24	13	170		29.43			29.83	AA		29.85
09	1552	12	CLR	10.00		106	41.1	74	23.0	57	13.9	20	13	160		29.40			29.79	AA		29.82
09	1652	12	CLR	10.00		103	39.4	78	25.6	68	20.0	32	20	160		29.37			29.77	AA		29.79
09	1752	12	CLR	9.00		99	37.2	77	25.1	68	20.0	37	15	170		29.36			29.76	AA		29.78
09	1852	12	CLR	10.00		96	35.6	76	24.7	68	20.0	40	13	180		29.36			29.76	AA		29.78
09	1952	12	CLR	10.00		94	34.4	76	24.4	68	20.0	43	14	180		29.36			29.76	AA		29.78
09	2052	12	CLR	10.00		92	33.3	75	24.1	68	20.0	45	14	180		29.38			29.77	AA		29.80
09	2152	12	CLR	10.00		90	32.2	75	24.1	69	20.6	50	15	180		29.39			29.79	AA		29.81
09	2252	12	CLR	10.00		88	31.1	74	23.5	68	20.0	52	16	180		29.40			29.80	AA		29.82
09	2352	12	CLR	10.00		87	30.6	74	23.3	68	20.0	53	15	180	22	29.40			29.80	AA		29.82

Figure A-11. Quality-controlled local climatological data hourly observations table for the Blythe Airport, Blythe, CA (07/09/2013). Dynamically generated via http://cdo.ncdc.noaa.gov/qclcd/QCLCD.

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA
HOURLY OBSERVATIONS TABLE
BLYTHE AIRPORT (23158)
BLYTHE, CA (07/10/2013)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 395 ft. above sea level
Latitude: 33.618
Longitude: -114.714

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp		Wet Bulb Temp		Dew Point Temp		Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti-meter (in. hg)
						(F)	(C)	(F)	(C)	(F)	(C)											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
10	0052	12	CLR	10.00		87	30.6	74	23.3	68	20.0	53	18	170	25	29.43			29.83	AA		29.85
10	0152	12	CLR	10.00		87	30.6	75	23.7	69	20.6	55	24	190		29.46			29.85	AA		29.88
10	0252	12	CLR	9.00		86	30.0	74	23.5	69	20.6	57	25	190	32	29.47			29.86	AA		29.89
10	0326	12	BKN020	5.00	HZ	84	29.0	74	23.5	70	21.0	63	15	180		29.48			M	SP		29.90
10	0350	12	FEW022	5.00	HZ	84	29.0	74	23.5	70	21.0	63	6	170		29.49			M	SP		29.91
10	0352	12	FEW022	5.00	HZ	84	28.9	75	23.9	71	21.7	65	6	170		29.49			29.88	AA		29.91
10	0452	12	CLR	6.00	HZ	84	28.9	75	23.9	71	21.7	65	6	230		29.48			29.88	AA		29.90
10	0552	12	CLR	9.00		86	30.0	74	23.2	68	20.0	55	8	190		29.49			29.89	AA		29.91
10	0652	12	CLR	3.00	HZ	84	28.9	74	23.5	70	21.1	63	10	160		29.49			29.89	AA		29.91
10	0752	12	CLR	6.00	HZ	87	30.6	75	23.7	69	20.6	55	10	170		29.49			29.89	AA		29.91
10	0852	12	CLR	9.00		88	31.1	75	23.8	69	20.6	53	8	160		29.49			29.89	AA		29.91
10	0952	12	CLR	10.00		93	33.9	76	24.2	68	20.0	44	11	180		29.48			29.88	AA		29.90
10	1052	12	M	10.00		96	35.6	76	24.7	68	20.0	40	16	150		29.47			29.86	AA		29.89
10	1152	12	CLR	10.00		97	36.1	77	24.8	68	20.0	39	17	160		29.45			29.85	AA		29.87
10	1252	12	CLR	10.00		99	37.2	77	25.1	68	20.0	37	16	190	33	29.42			29.82	AA		29.84
10	1352	12	CLR	10.00		101	38.3	78	25.7	69	20.6	36	18	160	25	29.39			29.79	AA		29.81
10	1452	12	CLR	10.00		102	38.9	77	24.9	66	18.9	31	17	170	23	29.37			29.76	AA		29.79
10	1552	12	CLR	10.00		102	38.9	75	24.0	63	17.2	28	18	170	29	29.34			29.74	AA		29.76
10	1652	12	CLR	10.00		101	38.3	75	23.6	62	16.7	28	15	180		29.34			29.73	AA		29.76
10	1752	12	CLR	10.00		97	36.1	76	24.2	66	18.9	36	17	180		29.34			29.73	AA		29.76
10	1852	12	CLR	10.00		95	35.0	75	23.6	65	18.3	37	15	180		29.35			29.75	AA		29.77
10	1952	12	CLR	10.00		94	34.4	73	22.9	63	17.2	36	14	190		29.36			29.75	AA		29.78
10	2052	12	CLR	10.00		91	32.8	73	22.7	64	17.8	41	9	170		29.39			29.79	AA		29.81
10	2152	12	CLR	10.00		89	31.7	73	22.7	65	18.3	45	13	190		29.40			29.79	AA		29.82
10	2252	12	CLR	10.00		90	32.2	73	22.8	65	18.3	44	14	180		29.39			29.78	AA		29.81
10	2352	12	CLR	10.00		87	30.6	73	22.7	66	18.9	50	15	180		29.39			29.78	AA		29.81

Figure A-12. Quality-controlled local climatological data hourly observations table for the Blythe Airport, Blythe, CA (07/10/2013). Note that HZ (haze) was reported coincident with reduced visibilities following a period of gusty southeasterly winds. Specific visibility obstructions (such as blowing dust) are manually entered by human observers and are not reported automatically. Dynamically generated via http://cdo.ncdc.noaa.gov/qclcd/QCLCD.

Appendix B:
ADEQ and NWS Forecast Products

ADEQ Arizona Department of Environmental Quality

AQI AIR QUALITY INDEX

200	VERY UNHEALTHY (201-300)
150	UNHEALTHY (151-200)
100	UNHEALTHY FOR SENSITIVE GROUPS (101-150)
50	MODERATE (51-100)
	GOOD (0-50)

For more information visit: http://www.airnow.gov/index.cfm?action=aqibasics.aqi

YUMA AIR QUALITY FORECAST FOR
Tuesday, July 09, 2013

This report is updated by 1:00 p.m. Sunday thru Friday and is valid for areas within and bordering the city of Yuma, Arizona

FORECAST DATE NOTICES *see below for details AIR POLLUTANT	YESTERDAY Sun 07/07/2013 NONE AQI Reading/Category (Preliminary data only)	TODAY Mon 07/08/2013 DUST	TOMORROW Tue 07/09/2013 DUST	EXTENDED Wed 07/10/2013 DUST
O3 (Ozone)	47 GOOD	38 GOOD	42 GOOD	42 GOOD
PM-10 (Particles 10 microns and smaller)	28 GOOD	65 MODERATE	70 MODERATE	70 MODERATE

* ***Ozone Health Watch*** means that the highest concentration of OZONE may approach the federal health standard.
PM-10 Health Watch means that the highest concentration of PM-10 may approach the federal health standard.
High Pollution Advisory means that the highest concentration of OZONE or PM-10 may exceed the federal health standard.
DUST means that short periods of high PM-10 concentrations caused by outflow from thunderstorms is possible.

Health Statements	
Monday 07/08/2013	Unusually sensitive people should consider reducing prolonged or heavy exertion.
Tuesday 07/09/2013	Unusually sensitive people should consider reducing prolonged or heavy exertion.

ADEQ Arizona Department of Environmental Quality

MARICOPA COUNTY DUST CONTROL FORECAST

ISSUED Tuesday, July 9, 2013

Three-day weather outlook:

Phoenix will see daytime highs drop from 108°F on Tuesday to around 102°F on Thursday, warming above 110°F again by Sunday. Each day will bring a slight chance for afternoon showers and thunderstorms with Wednesday afternoon and evening seeing the best shot. The area is still waiting for a soil-stabilizing rain event. Until then, any approaching storm with significant outflow will likely generate dust ahead of any precipitation the Valley would see. Thus, the risk of exceeding the 24-hr PM10 health standard in Phoenix will be Moderate on Wednesday, dropping to Low by Thursday due to some areas possibly see some wetting rain the night before.

R I S K F A C T O R S

	WINDS		STAGNATION		UNHEALTHY PM-10 RISK LEVEL
Day 1: Wed. 7/10/2013	Southwest winds between 5 and 15 mph are expected during the afternoon, possibly gusting higher near t-storm	+	Stagnant conditions are expected, improving if precipitation occurs.	-	MODERATE
Day 2: Thu. 7/11/2013	Southwest winds between 5 and 10 mph are expected during the afternoon, possibly gusting higher near t-storm out flow.	+	Stagnant conditions are expected, improving if precipitation occurs.	-	LOW
Day 3: Fri. 7/12/2013	Southwest winds between 5 and 10 mph are expected during the afternoon.	+	Stagnant conditions are expected.	-	LOW
EXTENDED OUTLOOK					
Day 4: Sat. 7/13/2013	Southwest winds between 5 and 10 mph are expected during the afternoon.	+	Stagnant conditions are expected.	-	LOW
Day 5: Sun. 7/14/2013	Southwest winds between 5 and 10 mph are expected during the afternoon, possibly gusting higher near t-storm out flow.	+	Stagnant conditions are expected, improving if precipitation occurs.	-	LOW

The Maricopa County Dust Control Action Forecast is issued to assist in the planning of work activities to help reduce dust pollution. A recorded message of this forecast can be accessed at 602-771-2368. To review the complete air quality forecast for the Phoenix metropolitan area, as well as the health impacts and reduction methods for different air pollutants, call 602-771-2367 for recorded forecast information or click on ADEQ's Air Quality Forecast at http://www.azdeq.gov/environ/air/ozone/ensemble.pdf.

JRP 04/28/2011

National Weather Service Phoenix Forecast Products – see highlighted areas

AREA FORECAST DISCUSSION
NATIONAL WEATHER SERVICE PHOENIX AZ
930 PM MST TUE JUL 9 2013

.SYNOPSIS...
A MORE FAVORABLE SOUTHEASTERLY FLOW WILL BEGIN TO IMPORT MONSOON MOISTURE BACK INTO THE REGION OVER THE NEXT COUPLE DAYS. THIS WILL LEAD TO A GRADUAL INCREASE IN SHOWERS AND THUNDERSTORMS ACROSS THE REGION THAT WILL LAST THROUGH AROUND SATURDAY. THE INCREASED MOISTURE WILL ALSO RESULT IN COOLER DAYTIME TEMPERATURES FOR THE REST OF THE WORK WEEK...RETURNING TO NEAR NORMAL OR SLIGHTLY ABOVE NORMAL VALUES BY THE WEEKEND.

&&

.DISCUSSION...
SHOWER AND THUNDERSTORMS AGAIN REMAINED OVER THE ARIZONA/NEW MEXICO AND OLD MEXICO MOUNTAINS THIS AFTERNOON AND FAILED TO ORGANIZE THEIR WAY INTO THE LOWER DESERT ELEVATIONS. EARLIER HOPES IN PROMISING CAPE VALUES /NEAR 3500 J/KG OVER PORTIONS OF MARICOPA AND PINAL COUNTIES/ AND EASTERLY STEERING FLOW BUILDING INTO THE REGION LATER IN THE DAY WERE NOT ENOUGH TO OVERCOME THE 750MB INVERSION LAYER OBSERVED IN THE 00Z PSR RAOB. LARGE MCS COMPLEX CONTINUES ALONG THE INTERNATIONAL BORDER AND ACROSS MUCH OF THE SONORAN STATE IN MEXICO THIS HOUR AS AN INVERTED TROUGH MOVES ACROSS NORTHERN MEXICO. GIVEN THE MOIST ATMOSPHERE AND POTENTIAL FOR ANY LARGE SCALE STORM OUTFLOWS TO WORK THEIR WAY BACK INTO THE SOUTH CENTRAL DESERTS...MAINTAINED VERY LOW END SLIGHT CHANCE POPS INTO THE OVERNIGHT HOURS ACROSS THE SOUTH CENTRAL DESERTS. DEWPOINTS RECEIVED A HEALTHY BOOST OVER READINGS FROM THIS TIME MONDAY EVENING...WITH VALUES ACROSS MANY SITES IN THE SOUTHEAST CALIFORNIA ABOVE 70F FOR MOST OF THE DAY. AS SUCH...DAYTIME HIGHS WERE 7 TO 10 DEGREES COOLER WITH SITES LIKE YUMA AND PHOENIX ACTUALLY REPORTING JUST UNDER NORMAL VALUES FOR THE DAY. WITH CONTINUED MOISTURE PRESENCE AND FAVORABLE POSITIONING OF THE RIDGE DURING THE LATTER PART OF THE WEEK...WILL HOLD ON TO INCREASING STORM CHANCES EACH AFTERNOON. NO MAJOR ADJUSTMENTS ANTICIPATED FOR THE OVERNIGHT FORECAST PACKAGE...JUST MINOR CHANGES TO SKY AND DEWPOINT GRIDS TO TREND BETTER TO THE LATEST OBS.

&&

.PREVIOUS DISCUSSION /ISSUED AT 3PM MST/PDT/...
A PRIMARY RESULT OF THE MOISTURE INCREASE WILL BE AN UPTICK IN SHOWER AND THUNDERSTORM ACTIVITY...MAINLY ACROSS THE HIGHER TERRAIN AREAS OF SOUTH-CENTRAL ARIZONA/NORTH AND EAST OF PHOENIX THIS AFTERNOON/EVENING. PER THE 12Z KPSR RAOB...WEAK NORTH-NORTHEASTERLY STEERING FLOWS ARE NOT HIGHLY CONDUCIVE FOR PROPAGATING STORMS INTO THE LOWER DESERTS...BUT ANY STORM STILL HAS THE POTENTIAL TO DRIFT OFF THE MOUNTAIN TERRAIN AND MAKE IT INTO THE LOWER ELEVATIONS... PRODUCING STRONG OUTFLOWS/BLOWING DUST...AND EVEN SOME LOCALIZED HEAVY RAINFALL. THUNDERSTORMS CHANCES ARE LESS AS YOU GO FURTHER WEST FROM PHOENIX TO THE LOWER COLORADO RIVER VALLEY. THE 500MB STEERING FLOW DOES INCREASE IN SPEED TO AROUND 25KT AND BECOMES MORE EASTERLY LATER THIS EVENING...SO STORMS ALONG THE AZ-NM COULD BECOME

MORE ORGANIZED AND CARRY TO THE SOUTH AND WEST LATER...THESE STORMS
CAPABLE OF PRODUCING DAMAGING WINDS. BOTH MODELS ALSO SUGGEST THAT
THE INVERTED TROUGH OVER CHIHUAHUA MAY FILL IN AND JOIN TOGETHER
WITH THIS DISTURBANCE BEFORE DECAYING ACROSS SONORA MEXICO AND ALONG
THE INTERNATIONAL BORDER INTO EARLY WEDNESDAY MORNING.

PREVIOUS DISCUSSION...
BETTER CHANCES FOR SHOWERS AND THUNDERSTORMS ARE EXPECTED ON
WEDNESDAY AND THURSDAY. ON WEDNESDAY...1000-700 MB MIXING RATIOS
INCREASE TO AROUND 12 G/KG ACROSS SOUTH-CENTRAL ARIZONA AND UP TO 10
G/KG ACROSS SOUTHWEST ARIZONA. MID-LEVEL FLOW INCREASES OUT OF THE
SOUTHEAST STARTING ON WEDNESDAY AND ESPECIALLY INTO EARLY THURSDAY.
A STRONG INVERTED TROUGH CURRENTLY MOVING INTO CHIHUAHUA MEXICO IS
PROGGED TO SLOWLY DRIFT WESTWARD TODAY INTO WEDNESDAY REACHING
SONORA MEXICO. WHILE THE INVERTED TROUGH IS EXPECTED TO WEAKEN AS IT
NEARS THE REGION...WE COULD SEE SOME INFLUENCE FROM THE TROUGH
ACROSS SOUTHERN ARIZONA. HAVE INCREASED POPS ON WEDNESDAY EXTENDING
SLIGHT CHANCES WESTWARD TO THE CA/AZ STATE LINE WITH MOST ARIZONA
LOCATIONS IN THE 20-40 PERCENT RANGE. SOME STORMS COULD BE SOMEWHAT
ORGANIZED ON WEDNESDAY WITH 0-6KM BULK SHEAR UP TO 25 KTS AND CAPES
OF 500-1000 J/KG. SOUNDINGS ON WEDNESDAY STILL SHOW AN INVERTED V
SIGNATURE SO DAMAGING WINDS WILL BE A THREAT...BUT OVERALL THE
SEVERE THREAT WILL BE LOW.

BY WEDNESDAY NIGHT INTO THURSDAY...STEERING FLOW INCREASES OUT OF
THE SOUTHEAST TO AROUND 20 KTS AND THE FULL FORCE OF THE MONSOON
MOISTURE WILL OVERSPREAD THE REGION. BY THURSDAY AFTERNOON...THE
ENTIRE CWA WILL SEE 1000-700MB MIXING RATIOS OF 11-13 G/KG WITH
PRECIPITABLE WATER VALUES OF AROUND 2 INCHES. MID-LEVEL FLOW ALSO
INCREASES WITH 500MB WINDS OF 25-35 KTS AND 0-6KM BULK SHEAR
APPROACHING 30 KTS. AT THE MOMENT...THERE IS NO DISCERNIBLE FEATURE
IN THE FLOW TO ENHANCE THE ACTIVITY ON THURSDAY...BUT THAT COULD
CHANGE. RAISED POPS WEDNESDAY NIGHT AND ALL DAY THURSDAY AND MAY BE
A LITTLE CONSERVATIVE WITH A WIDESPREAD 20-40 PERCENT. THE THREAT
FOR DAMAGING WINDS WILL LIKELY BE LESS ON THURSDAY WITH LESS
FAVORABLE SOUNDING PROFILES...BUT VERY MOIST PROFILES SUGGEST THE
POTENTIAL FOR HEAVY RAINFALL. THE MAIN THREAT SHIFTS TO FLASH
FLOODING...BUT STILL CAN/T RULE OUT THE THREAT FOR DAMAGING WET
MICROBURSTS. TEMPERATURE FORECASTS FOR THURSDAY ARE ON THE TRICKY
SIDE...DEPENDING ON HOW MUCH CLOUD COVER AND STORM ACTIVITY THERE
IS. OVERALL...SHOULD SEE HIGHS WELL BELOW NORMAL WITH MANY LOWER
DESERT LOCATIONS LIKELY NOT REACHING 100.

FRIDAY COULD BE A DOWN DAY IF THURSDAY ENDS UP BEING AN ACTIVE
MONSOON DAY. HOWEVER...MONSOON MOISTURE SHOULD STILL BE IN FULL
FORCE SO AREAWIDE SLIGHT TO CHANCE POPS ARE WARRANTED. SHOULD START
TO SEE A GRADUAL DECREASE IN MOISTURE SATURDAY AND ESPECIALLY SUNDAY
WHERE POPS ARE MAINLY CONFINED TO SOUTH-CENTRAL ARIZONA. AS THE
MOISTURE DECREASES...EXPECTING TEMPERATURES TO RECOVER THIS WEEKEND
WITH HIGHS RETURNING TO ABOVE NORMAL STARTING SUNDAY. ANOTHER SURGE
OF MONSOON MOISTURE LOOKS TO BE LIKELY EARLY NEXT WEEK WITH
INCREASING SHOWER AND THUNDERSTORM CHANCES.

&&

.AVIATION...
SOUTH-CENTRAL ARIZONA...INCLUDING KPHX...KIWA AND KSDL...

ELEVATED WESTERLY SURFACE FLOW WILL PERSIST FOR THE PHX TERMINALS THROUGH MUCH OF THE EVENING AND EARLY MORNING HOURS. LARGE AREA OF STORM ACTIVITY WELL TO OUR SOUTH ALONG THE INTL BORDER MAY SEND BREEZY SOUTH WINDS...POTENTIAL FOR LOFTED DUST AND DEBRIS CLOUDS TO THE REGION BY THE SUNRISE. CONFIDENCE AT THIS TIME IS TOO LOW TO INCLUDE ANY WIND HEADING CHANGES OR CIGS BELOW 10K AGL IN THE 06Z TAF PACKAGE. STRAY SHOWER DEVELOPMENT ACROSS THE METRO COULD OCCUR OVERNIGHT...MOSTLY REMAINING HIGH BASED WITH LITTLE MEASURABLE PRECIP BUT POTENTIAL FOR BREEZY BUT ERRATIC WINDS IN THE VICINITY OF THE TERMINALS.

SOUTHEAST CA AND SOUTHWEST AZ...INCLUDING KIPL AND KBLH...
SCT-BKN HIGH CLOUDS WILL PERSIST OVERNIGHT AS WILL CONTINUED BREEZY SOUTHEASTERLY WINDS. VERY SLIM STORM/RAIN CHANCES CONTINUE TO REMAIN FOR THE TAF PERIOD...HOWEVER BREEZY OUTFLOW WINDS AND ACCOMPANYING DUST MAY MOVE INTO THE REGION FROM MEXICO AND THE GULF OF CALIFORNIA IN THE EARLY MORNING HOURS.

SPECIAL WEATHER STATEMENT
NATIONAL WEATHER SERVICE PHOENIX AZ
210 AM MST WED JUL 10 2013

AZZ022-023-025>028-101200-
NORTHWEST MARICOPA COUNTY-GREATER PHOENIX AREA-
YUMA/MARTINEZ LAKE AND VICINITY-SOUTHWEST DESERTS-
SOUTHWEST MARICOPA COUNTY-NORTHWEST AND NORTH CENTRAL PINAL COUNTY-
INCLUDING THE CITIES OF...BUCKEYE...LAKE PLEASANT...MORRISTOWN...
NEW RIVER...TONOPAH...WICKENBURG...CAREFREE...CAVE CREEK...
CHANDLER...FOUNTAIN HILLS...GILBERT...GLENDALE...MESA...PEORIA...
PHOENIX...SCOTTSDALE...SUN CITY...TEMPE...FORTUNA FOOTHILLS...
SAN LUIS...SOMERTON...YUMA...DATELAND...TACNA...WELLTON...
GILA BEND...APACHE JUNCTION...CASA GRANDE...COOLIDGE...AND FLORENCE
210 AM MST WED JUL 10 2013

...SHOWERS AND OCCASIONAL WIND GUSTS AFFECTING ARIZONA THIS MORNING...

ISOLATED TO SCATTERED SHOWERS WILL CONTINUE ACROSS PARTS OF CENTRAL AND SOUTHWEST ARIZONA THROUGH 5 AM THIS MORNING. SOME OF THESE SHOWERS WILL PRODUCE LOCALLY HIGHER WIND GUSTS UP TO 35 MPH ACROSS THE AREA. THIS MAY LEAD TO LOCALIZED BLOWING DUST WITH VISIBILITIES REDUCED AS LOW AS 3 TO 5 MILES FOR BRIEF PERIODS...ESPECIALLY ALONG INTERSTATE 8 FROM CASA GRANDE TO YUMA.

Appendix C:
Affidavit of Public Notice

ADEQ Arizona Department of Environmental Quality
Janice K. Brewer, Governor
Henry R. Darwin, Director

PUBLIC NOTICE

Request for Public Comments on Exceptional Events in the Yuma Area

In 2005, Congress identified a need to account for events that result in exceedances of the National Ambient Air Quality Standards (NAAQS) that are exceptional in nature (e.g., not expected to reoccur or caused by acts of Nature beyond man-made controls.) In response, EPA promulgated the Exceptional Events Rule (EER) to address exceptional events in 40 CFR Parts 50 and 51 on March 22, 2007 (72 FR 13560). On May 10, 2013, EPA released interim guidance documents to State, tribal and local air agencies for review. These guidance documents clarify key provisions of the 2007 EER in response to questions and issues that have arisen since the rule was promulgated. The EER allows for states and tribes to "flag" air quality monitoring data as an exceptional event. If flagged, these data can be excluded from consideration in air quality planning if EPA concurs with the demonstration submitted by the flagging agency documenting that all procedural and technical requirements have been met.

Pursuant to 40 CFR 50.14(c)(3)(i), the Arizona Department of Environmental Quality (ADEQ) is soliciting comments on draft demonstrations of events that have caused elevated concentrations of PM_{10} in the Yuma area on July 4, and July 10, 2013. ADEQ has decided to flag these episodes based on these analyses. Copies of the demonstrations are available for review beginning Monday, December 16, 2013 on the ADEQ website at http://www.azdeq.gov/environ/air/plan/nee.html. Interested parties can submit written comments throughout the comment period which will end at 5:00 p.m. on Tuesday, January 14, 2014. Any comments received will be responded to and forwarded to EPA with the final demonstrations.

Written comments should be addressed, faxed, or e-mailed to:
Andra Juniel, Air Assessment Section, Arizona Department of Environmental Quality, 1110 W. Washington Street, 3415-A, Phoenix, AZ 85007, PHONE: (602) 771-4417; FAX: (602) 771-2366, E-mail: juniel.andra@azdeq.gov.

In addition to being available on-line, copies of the analyses are available for review at the following locations:

> Monday through Friday, 8:30 a.m. to 4:30 p.m., at the ADEQ Records Management Center, 1110 W. Washington St., Phoenix, AZ, 85007, Attn: Records Center, (602) 771-4380, email: recordscenter@azdeq.gov.
>
> Yuma County Library, Reference Section, 2951 S. 21st Dr., Yuma, Arizona 85364, Attn. Brian Franssen, (928) 782-1871, E-mail: bfranssen@yumalibrary.org.

Persons with a disability may request a reasonable accommodation, such as a sign language interpreter, by contacting Alicia Pollard at (602) 771-4791 or at pollard.alicia@azdeq.gov. The TDD line for hearing impaired individuals is (602) 771-4829. Requests should be made as early as possible to allow time to arrange for the accommodation.